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Birds of California  
Species Accounts

Lophortyx (part)  
1930-1936

E L Sumner, Jr.







the first time this morning. The R ♂ was in a baccharis bush at e. side of Q. 9., doing sentry duty, and the young were feeding on the ground below. At this time I heard the first circa cow notes given by the young (of course they may actually have given them before today). They were very faint, and somewhat shrill, and the accent given the syllables varied greatly (at least from one individual to another), indeed they sounded like some of my own poorest attempts at quail calling when the "need" in the quail caller was dry or imperfect: (a) cú cú cú, cú cú cú

(b) cú cá cáw, cú cá cáw (as in ads.)

(c) cú cú cú, cú cú cú (something like some ads.)

(d) cú cú cú, cú cú cú (something like a few adults).

The young have imbibed much of the wariness of their parents. About 10:55 one of them went to the water fountain to drink and I snapped the graphex, where upon he

Photo





immediately started away into the tall grass, and, commencing his alarm to the others (by force of example, of course), prevented any of the other birds from going to water until 12:07

12:07 The whole family made for water now, or at least most of it, including both ♂s, a ♀, and several young. I should have mentioned last time (Aug. 8), that the B pr., which is evidently not going to nest, has been tagging along with the red convey since I came back from vacation. When the R ♂, and young, come to water, the B ♂ comes too, or sometime both Bs. The young, <sup>or some of them</sup> sometimes run along with the B birds too when the latter come in to drink. There is no hostility between adults, apparently, now that the breeding season is about over, and the Bs are becoming a regular part of the convey. I have not seen the B ♂ do sentry duty for a long time (since last recorded

Photos







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in the notes); perhaps it is necessary for a ♂ to have young in order to develop the sentry habit to its fullest.

12:50. I have been hearing rustling sounds in the dry grass, low chirps from the young, and low notes from the ♂ for nearly half an hour, showing that the family is actually foraging.

12:52. Now I see some of them - a ♂, ♀, and several young, foraging at the edge of the sawdust path. One of the young was seen to take repeated bites at leaves of what I think was *Anthemis cotula*. This plant is in full flower, but not yet in seed, in the Q.D.

Aug 25, 1932.

About 8 A.M. Ethel heard a great commotion among the Q.D. quail - first a whirring of wings and then a great deal of pit-pitting. There was also a banging of the ~~seed~~ wire (but this was probably by the hawk to be mentioned). Looking out, she saw a Cooper hawk perched on top of the Q.D. wires, looking in.

1



He had some feathers sticking to his beak (doubtless not from any bird inside the Q.D.) When he saw Ethel he flew off.

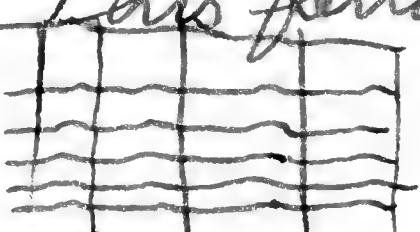
The coveys around the s. side of the feed path continues to remain there. I frequently shoot lizards with my 22 rifle (shot shells) but this slight noise gives them no concern, as is also the case with the Q.D. birds. There is a general scattering out of the coveys at this time, and one sees them now in places where no quail were to be seen during the breeding season, for instance, under the feather acaia trees by the boat house, and along the "road" that leads through the woods to my "garage".

7:07 P.M. dusk. To night I saw the Q.D. quail go to drink in the late evening for the first time in my experience. At 7:07 there was much pattering, then most or all of the birds came hurrying out of cover, ran to the fountain and drank and then, a minute or two later, threaded their way through the grass toward the trees and went to





roost.

About three minutes after this, in walking down the road that leads to the Boat-house, I flushed a covey of young and old birds from under the pine trees there. It was now fairly deep dusk, and although I could see the fence which parallels the road, quite easily, some of the quail, in their headlong flight, did not see it. Most of the covey barely cleared it, but two birds crashed into it with considerable violence, and fell to the ground. They were not killed, however, and perhaps they were only slightly injured, for they ran into a pile of brush, and so I approached one flew (I think) and the other one ran off. This fence was a ~~log~~ field fence , not a barbed wire fence, and so would be more likely to injure a quail than the more open barbed wire fence, I think (unless, of course, the quail were to land squarely on a barb).

Aug 30 9 A.M. The weather is much cooler





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thous heretofore (see weather notes <sup>with</sup> ~~and~~ the temperature 77 at 9:40), but the quail came to drink at 9 A.M. just as they always do.

11:15 Again they came to drink (temp. 80°F). The R♂ stood on his little stick (see photos) during sentry duty while ~~at~~ the nest, at least the young, went to water.

The young are as active and playful as ever. When one has finished it will wander away a few steps and then, instead of walking to cover (and the food there), it will spring into the air and fly there, pit-pitting loudly. Any others that may have finished drinking are likely to follow it, flying and pit-pitting in the same way, and even some of those which have not drunk, but are on their way to water, may follow them as well. I have noted that the adults pay no attention to these "wolf, wolf" cries unless they have already been rendered uneasy on their own account. For instance, when three young flew away pit-pitting today, the





two adults (♂ & ♀) which were feeding in the open, by the water fountain, paid no attention, nor did certain others of the young which were still drinking. Sometimes the young instead of flying, when indulging in their mock alarm play, will dive precipitately into the tall grass, giving the same pit pit calls.

The young are about  $\frac{2}{3}$  ds. of the way along in their molt into the "first winter plumage" (the grayish plumage, I mean). Some of them still have <sup>on</sup> the ~~pasture~~ rump and flanks the brown immature plumage, but even in these the head, shoulders, and breast is now gray.

The R♂ and the B♀ both seem to be molting profusely on head and neck. The top knot of the R♂ is reduced to a single short, worn, feather, while the B♀ is very bedraggled about the head, even her top knot being askew. The B♂ and R♀ do not show this as yet.

The R♂ was still on sentry duty after all the young had

(but this was partly due to a head injury seen later)





drunk and gone; presently he climbed down, and joined them without having had a drink himself. However, at 11:35 he came out of the tall grass once more and went straight to the water, followed by his mate. At this, the rest of the covey - all the young, and the Bps. - came out too, and some of them drank, while the rest simply fed in the vicinity. The R♂ and R♀ took more than 6 sips each. The youngsters showed a tendency to follow after the B. ps. when their own parents were not near.

1:30 - Here is an example of (1) Alarm notes and behavior of quail when more than usually startled (2). Extreme nervousness of quail. I heard a quail fly up into the brush at the S.W. <sup>to do sentry duty</sup> cor. of the place. About 30 seconds later it gave a very loud kee-er up noise (same as the clucking mo mo, <sup>signal</sup> to freeze) call and flew with a whirr of wings, plittplitting the while, into cover at the E. side of the A.D. Here it plumped itself down and was absolutely





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silent, as were all the other quail in the Q.S., probably because they had all froze (although I couldn't tell because they were all out of sight at the time). Probably what scared this quail was a sudden movement on the part of the young sparrow hawks in their cage 20 ft away.

Aug 31, 1932. At about 6:55 The whole Q.S.

cohort came out to the open place near water, fed, and then went in a little bunch and drank. While they were still drinking, one of the young, apparently in an excess of spirit as usual, burst from the flock with a whirr of wings and made for the roosting place. The rest of the group instantly rose up and whirled over there too (although I bet that some of them had not as yet finished drinking). On the way over, one of the young rose too high and crashed into the ceiling wire, falling again instantly into the long clow below. So much for youth, inexperience, and <sup>the</sup> instructure



aspiring for a high roosting place.  
What I took to be the same bird  
emerged from the clower <sup>near</sup> there  
a moment later and flew, this  
time low, into the trees where  
the rest of the flock were. It was  
now exactly 7 P.M., the dusk  
being quite deep — the light  
being, indeed, at about the same  
intensity that it was a month  
or so earlier when the birds  
went to bed at 7:50 and 8 P.M.  
Sept 1, 1932. 10:07 A.M. The <sup>Q</sup> quail all came  
to drink at this time.

12:00. A ♂ (?) heard to fly up  
into brush at S.W. corner of A.D. for  
sentinel duty. The young are feeding  
in the same clower below. The young  
still give the shrill, needy, immature  
peep, when feeding, to keep in touch  
with one another, but they also give  
a low mo-mo like the adults,  
now. Watched one eating fresh green  
leaves of *Anagallis arvensis*, also saw  
clowers.

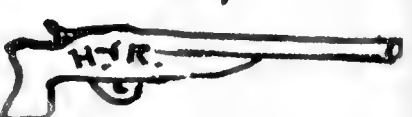
12:17. 3 young went to drink.  
Sept 3, 1932. Went hunting for quail for stomach





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examinations this P.M., first time. Shot and.  
♀ as indicated on Map III. (~~wt 190~~ on spring  
scales; 195 on balance) <sup>she was molting on head and</sup> neck, even as my G.T. birds.  
scales.

There was a covey of young at the  
deserted shack on the Miridgo Road, as  
indicated on Map III. I was unable to  
shoot any there, for they saw me  
and ran into a thick tangle of  
brush 50 ft wide by several hundred  
feet long. Here they stayed without flush-  
ing, running back and forth, with  
occasional pit-pits, as I prowled  
back and forth along the edge of  
the tangle. After a while I sat down  
in the road, at a point opposite  
the tangle, where the quail could be  
heard, and waited for about 20  
minutes. At the end of this time  
four adults (?) came out into the  
road at the edge of the tangle, about  
100 ft away, and dust bathed. It  
was now dusk. The road was  
tracked nearly solidly with quail  
foot prints all along the road  
for 50 ft or more at this point.  
I fired at them but got none  
due to the gun being a .410 





"Handy Gun" instead of a real shotgun.

When I first came upon this covey it was feeding in the brush in somewhat scattered formations with a ♂ perched on top of the brush in a conspicuous place doing sentry duty. He saw me just as I was about to shoot and dived into cover, giving an alarm call (plitt/plitt) which warned the others.

After the shot mentioned above some of the birds flushed <sup>some</sup> with much plittplitting and flew down the hill to some more thick cover. The remainder, guided by the continued plitt plitt of the first, kept jumping out one or two at a time and flying down to the first lot, until all had reassembled down below - where they doubtless passed the night and the brush patch where I stood in the gathering dusk was no longer tenanted.

Sept 4. Last night, between 12:30 and 3 (apparently), I heard a whirr of wings, some plitt plitting, and the continued banging of a quail against the ceiling wire



of the Q.I. One of the birds had become frightened and was flying about. It was practically pitch dark, except for star light. I don't know what could have so scared the bird, sheltered as the Q.I. birds are from predators - possibly a wood rat, on the outside, if the quail had been roosting close to the wires. I heard the two barred owls that live in this district hooting some distance away, so don't believe it was them. Besides, they would have favored the wire.

There is quite a lot of *cacca* coming, particularly in the mornings, from birds outside the Q.I., round about. These birds are members of small coveys of young with parents, at this time. I predicted this increase of calling about a month ago.

9:15 A.M. Q.I. quail came to drink 12 M. They came again. Photos were taken of a group of them. This time the clicking of the reflex, and tearing of tabs, did not disturb the birds in the least. Either they had got used to it, or else, which is more

Photos.





probably, they failed to see anything moving in connection with the sounds. (I had the camera, and myself, more carefully screened this time), and therefore did not take alarm. I have noticed this same lack of attention to sounds in many birds (e.g. *Columba passerinus* p. 39).

4 P.M. They came to water again, by ones and twos, the nest scratching, feeding, and in one case almost bathing close by the water pans. In at least one young bird the ~~at~~ light stripe over the eye and the one around the back of the face, and also the blue feathers of the neck and chest, are plainly visible.

Sept 5, 1932

6:55 P.M. (dark) all the Q.D. birds went to drink immediately before flying up to roost.

The thrashers have not been seen since before the water dried up (see entry, ab. Aug 17); they must have indeed died of thirst, although the quail did not.

more  
photos, of  
birds  
feeding





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Sept 6, 1932. Dawn comes at 5 A.M. this time of year; at that hour it is <sup>etc.</sup> deep dusk and the first few <sup>etc.</sup> troupes have just begun to call. There is no sound from the quail at this time.

at ~~about~~ 7 A.M. I heard a strutting of the ceiling curies and a frightened pit pit from inside the Q.D. The cooper hawk was there again, perched on top the Q.D. curies, trying to get in.

Photos.

Took photos of "an ideal feed patch" for quail, showing *Prinos echinodes* in seed, *Thermopsis congesta*, *anemone patula*, sunflowers, and others; also view of brush tangle just S. of the feed patch, where quail are to be found all the year around.

There were one or two quail droppings in each compartment of the charcoal, grit, and shell tray. Of course these droppings may have got there by a bird simply perching on the edge of the tray, without actually partaking of its contents.

Here are some notes given me long since by E. L. S., Sr., but not recorded until now because all



the data were not at hand:

" The quail which flew out of your window on the 6<sup>th</sup> [May, 1932] was recaptured at the Botanical Gardens on the morning of the 10<sup>th</sup>. This bird was banded by E. L. S. <sup>5th Canyon</sup> and accidentally released by me, as indicated, at the M.V.Z. The Botanical Gardens are about 1 mile east, in an air line, from the M.V.Z. Bird was ~~♂~~ No. 409998

" Quail No 528206, ♂, banded near the swimming pool Dec. 8, 1930, has repeated eleven times in same location. (last time Dec. 9<sup>th</sup>, 1931). Repeated May 20<sup>th</sup> 1932 at Botanical Gardens. [Botanical Gardens are about .6 mi., air line, from the swimming pool.] repeated again 5/27, this time near the road just opposite the Paulsen Research Laboratory. Paulsen Research Lab. is about .4 mi., air line, from the Botanical Gardens and about .2 mi., air line, from the swimming pool.

No. 528229, ♂, is one trapped by E. L. S. in May, taken by me at Alpine Creek Ranch, and then returned by me again, without being





Last year, about October.

Gilkey told me that there would be much fewer quail this year than last on account of the unusually wet winter. As a result of this wet winter there are many springs now open which are not so usually. One, for example, is at present open which has not been so for 15 years, and another is present which has never been known of before. Gilkey named about 7 springs in the neighborhood, in place of the three (I think, it is 3; see notes last year) which are usually present. As a result of the presence of these springs, the quail are scattered about in the hills <sup>several</sup> coveys of thirty or more birds being present at each spring, instead of the whole lot being massed into one gigantic covey at the Gilkey spring as it was last year. Actually there are more quail in the country than last year, he says, but to a casual visitor at any one watering hole there seems to be very few. This was borne out by my observations. G. and I sat from 8 until 11:45 at the Gilkey





spring and yet we saw only one covey, of about 30 birds, all morning. So not the same, as a similar covey the night before, at about 6:45, when some - but not most - of the birds of the covey went to drink a short time before going to roost (the next event about a half an hour earlier than this). Another factor, doubtless, which made quail scarce at the spring was the fact that there had been a drearying fog the night before which did not clear up until 8 A.M. (it was so wet that it washed nearly all the mud off my car!). Gilkey said that such fogs were rare, there being only one or two in a season (none prior to this one this summer); usually, he said, there was no dew at all at night during the late summer.

Another reason why we saw few quail at the spring was that a cooper hawk made a dash at the one covey which was there, a few minutes after our arrival at 8 A.M. First we heard a



*Lophortyx c. calif.*

355.

whir of wings, <sup>several</sup> a loud alarm cluck  
and much pit plitting, out of sight  
around a corner of the gully.  
Gilkey said "A hawk must be  
after them". Sure enough, the  
next instant he flew past, empty-  
footed, and lit in a dagger pine  
near us, and surveyed the brush  
patch in which the quail were  
now crouching silently. Gilkey  
shot at him with a .22, whereupon  
he flew away. It was 7/4 of an  
hour from that time until we  
heard the first quail in the coveys  
break the silence - which he did  
by pit plitting in the way they  
usually do to reassemble after  
danger is past. The flock stayed  
in the thick brush there but never  
did venture down to water  
while we were there. If Gilkey  
had put piles of brush around  
the water hole (which is 30 ft from  
the nearest coveys), the birds would  
be more venturesome, and also  
safer from hawks.

Gilkey says that in the old days





when he was a market hunter they would plant a circle of stakes, with newspapers on them, around the water holes to scare the birds away, and leave only one water hole in the region open, this one being surrounded by blinds. The quail would be obliged to concentrate at the one hole and were mowed down by dozens at a single shot. Sometimes they would even stake the chosen water hole also, for a day or two, so that the birds would get good and thirsty. He says they would wait until the ground was solidly packed with the birds and then shoot, often getting 60 birds for each shot.

Sept 12, 1932. Alpine Creek Ranch. Carl Bolanger told me that a few days ago he found an ad. ♂ quail lying dead at the bottom of a wire fence, with a gash on the top of its head. The fence was wire netting up to about 5 1/2 ft, with three strands of barbed wire on top of that.

Went hunting for quail ones



at the deserted shack where I went the  
other time (see ante). The same  
coveys were there, feeding at dusk  
on an open, milk-thistle covered  
slope just below the dense tangle  
of brush into which they had  
taken refuge last time. When they  
saw me they immediately went  
into this brush tangle, again, and  
I was unable to get a shot. At 6:50  
they settled for the night, still  
in the thick tangle, which was  
hardly over 7 feet in height at  
the tallest places. It was composed  
of baccharis, mesquite, poison oak,  
coffee berry bushes, etc.

Sept 13, 1932. The cooper hawk tried again  
today (ab. 7 A.M.) to get the Q.D. quail.  
Reactions as previously described.

Last night, and I suspect the  
last 2 or 3 nights as well, there was  
dew on the leaves of the scarlet runner  
beans - and of course other plants  
as well. This dew was not at all  
noticeable unless one rubbed  
the leaves and looked at their surfaces  
against the light - and it might





be possible to overlook it entirely many nights, and believe that there had been none. Probably there is not usually as much as there was last night, however.

Shot a quail from a covey of ads and young at the top of the hill above the quarry. It was an ad(?) ♀; weight. 165.6 ✓

Another reason for clearing away dense areas of brush on quail refuges occurs to me: Not only does it open up more ground to the quail, but, also, it allows them to be observed and hunted - much more readily.

Sept. 16. Went hunting quail in back of the Guernsey house, where Carl Bolanger says two coveys have regularly been staying. Found one covey down in the bottom of a dark, densely brushy canyon (where they ought not to have been, theoretically) and got one shot in, at the time that I first surprised them. After that they scattered out in the thick brush and crevices of the canyon, some of them taking refuge in the tops



of the dense live oak trees, and I never  
got another shot. The birds in the  
tree tops would remain there perfectly  
silent, <sup>and invisible</sup> until I was under-neath, when  
they would burst out with a whir of  
wings and be out of sight down  
the canyon almost before I could  
get a glimpse of them. At length  
I stood perfectly still in some dense  
woods and used a quail-caller  
for 20 minutes or more. After a  
while fawn quail, in different  
places near by, answered me  
again and again, but they were  
still timid, and did not approach  
any nearer.

The one bird secured was a ♂  
wt. 179.0 moulted extremely.  
Perhaps the moulting process causes  
the birds to lose weight.

Sept 18, 1932 Alp. G. R. 10:15 A. M. The Q. J.  
coveys came out and fed in the open  
in the vicinity of the water. They  
scratched long and vigorously in  
the stubble composed of sweet clover  
and *Anthemris Patula*, in some  
cases pulling off (with an effort)





<sup>dry</sup> the ~~fruits~~ from the stalks of the stubble.  
During the night I had completed the  
Q.Q. quail trap which I had set in  
place uncompleted a week ago.  
It was made of a fine, light green  
bird net, and from its incon-  
spicuousness and from its being  
earthly in position for a week, the  
birds paid no attention to it.  
Three times while the flock was  
feeding in the open by the  
water a group of jays in the  
nearby canyon burst forth with  
their raucous calls, and each time  
they did so the majority of the  
members of the covey gave a little  
start and looked around, certain  
of the young birds disappearing  
into the grass, ever. However, although  
the quail were obviously placed upon  
the wire but these cues, they evidently  
set no great store by them, for  
they would immediately (2 or 3 seconds)  
return to their feeding, those which  
had retreated into the grass, rejoining  
their steps once more. Certain of  
the birds, including two or three



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of the adults, did not retreat at all. This is the first time I have observed quail to take any notice of the calling of jays.

I pulled the string of the trap when five of the birds were inside they were as follows:

Adults:

No. A409284

Color. Blue (♀)

Sex ♀

Weight 163.1 Remarks

the wing recently, but there is a large (1 1/4") gash on the top of her head just above the left eye. Her left eye is a f., nevertheless, but the right eye, which is very near the cut, and which is unobscured externally, has a peculiar opacity inside behind the iris (which is slightly dilated). She had kept this right eye closed most of the time, and I think it may be unable to see with it. Perhaps that is why it flew into the fence.

Young

New No.	Old No.	Color.	Sex	Weight.	Remarks
A409292	592719	yellow (♂)	♂	<del>154.7</del> 146.7	Blue feathers coming in on neck, sides of chest. Black facial mask and white supercilium and sub-ocular "malar" stripes also coming in.
<del>A40929</del>					
A409296	A40929, (cut down)	yellow (♀)	♀	129.6	moulting in stage corresponding to that of her bro.

Evidently the youngsters which seemed sick the other day was not much so, for there were in all ten apparently healthy birds today (4 ads + 6 young).

"  
twin of a  
ton Q. S. birds  
See also  
next page.



Ads. continued:

No.	Color	Sex	Wt.	Remarks
mated } 439321	Red (l.)	♀	173.2	molting, but
pr. } 439322	Red (l.)	♂	162.2	molting, but
				in good condition.
439330	Blue l.	♂	198.2	molting, but
				in good condition

Young

No.	Old No.	Color	Sex	Wt.	Remarks
F1409299	592715	white l.	♀	112.8	molting as
F1409301	592721	white, black l.	♀	125.0	other young

The last two birds listed above were trapped at 5:50, when the Q.D. birds came to water again (only the second time today, on account of various disturbances).

At about 4:15 P.M. the cooper hawk appeared, causing the usual consternation, and alighting on top the Q.D. wires, as before.

Caught one more at 6:25 - showing how soon the birds recovered from their fright (it is last one listed above).

Note the much greater wt. of the ♂ as compared with all the rest. Perhaps it is because he did not raise a family, and so did not have to go sentry duty and keep nervously keyed up all the time.





Sept 19, 1932

See Map I for locations of various coveys round about here. Evidently the banding together of family groups is well under way by now, as it was also at King City (see notes this month). Today a flock of about 26 rose with a thunder of wings from out of the experimental feed patch. This undoubtedly represents the fusion of two (at least) family groups. At about ~~5:00~~ 5:45 P.M. what was undoubtedly the same group came back to the s.w. corner of the Q.D. The birds ran around the edge of the fence, calling, and one individual perched for a time on top of the fence and then on top of the roof of the cabin, evidently being interested in the Q.D. quail, which were feeding on the ground below him. This means, probably, that in a free state the Q.D. covey and the outside covey would have coalesced at this time. The outside covey fed for some little time ~~outside~~ a few feet from the door, gleaning grain that had been spilled there by the J.D. hogs that



were loose the other day. Presently something scared them and they all flew downy into the willow thicket at the other end of the Q.D. The bird on top of the roof did not follow until a few moments later and the Q.D. birds did not show more than a momentary hesitation and alertness at the whirling flight of the coveys, showing that when quail hear the flight of other quail they do not take alarm themselves to the point of retreating.

The Q.D. birds had come out to feed at 5:45 only after a long period of hiding in silence. This period of hiding had been caused by my working on some ferns adjacent to the Q.D. As always, after the danger was over, the first bird to show itself was the R.B. who silently did sentry duty for many minutes (usually 5-20), until at last, having become reassured, he jumped down from his post, and a moment after ward appeared at the feeding and watering grounds





with the whole flock. I don't wish to imply that the rest of the flock stayed still during the time that he was doing sentry duty, waiting some signal from him to relax and fall to - on the contrary, I could see by the waving of the grass tops that they were feeding, out of sight on the ground below him. However, if he had given his alarm note they would have stood still.

At about 6:15 I pulled the trap string on several previously banded birds plus one more new one.

Only the new one was weighed, since the day was almost gone. It was as follows:

New No.	Old No.	Color	Sex & Wt.	Remarks
A409307	592714	yellow blue on l.	♀ 121.3	The <u>old</u> band was on the left leg.

When first pulled up out of the net this bird gave a frightened, needy, shrill peep-peep-peep, many times repeated, this being the first sound that I have heard from any of the birds trapped. This call had the same tone as the low "cheep".



which one sometimes hears from some of the birds of a flock which is retreating into the thick brush. It denotes fear altogether, I think.

staying of  
saw

I forgot to mention, that one of the outside ~~of~~ quail which came and fed near the door wore an aluminum B.S. band on one leg, but no celluloid band. There was just such a bird this spring, I think, (see ante), and it may be he, or it may be another of the ~~Is~~ that I banded, which has lost its celluloid band.

Sept 20, 1932. The outside coveys came and fed at the door, and ones at the spilled grain, until they caught sight of the sparrow hawk in the cage 10 ft away, when they hurried into the dense foliage of the <sup>Family</sup> ~~Cypripedium~~ trees. There, and remained, pit pitting for a while, and then silent and motionless until I came out and scared them away a half hour later. They gave the cheep cheep of fear when they flew - this being the cry they give when



they are escaping from a hawk, first, not, usually, when they are retreating from a man.

Caught the last of the uncaught Q. young at 3:15 P.M.

New No.	Old No.	Color	Sex	Weight	Remarks
#409308	592720	white, l.	♂	128.8	

Sept 23. Got two birds out of a flock just south of the north boundary of my chosen area (see Map I; just n. of Los Brancos Rd.) As usual, the thick brush in which they immediately took refuge prevented me from getting any more shots. The road was tracked up with the foot prints of the birds, as I have noticed in other places as well; evidently, the soft fine dust is used by them for dust bathing; also, perhaps, as a source of grit.

Measurements:

♂ wt 182.8 killed ab. 4 P.M.

♀ wt 194.9 killed ab. 6 P.M.

Sept 25, 1932.

5:30 A.M. gray dawn; the sun will not be visible for nearly an hour. A S.F.-spotted towhee is car-ring; several cu ca coos are to be heard





from not far away, outside the Q.D.; also a flutter of wings from one of the Q.D. birds.

5:40 - One after another the Q.D. quail suddenly flew from the roosting trees on the e. side, straight out to the feeding area by the water fountain. It was cool and rather dim as to light, and the birds all seemed lacking in alertness and clear intellect, as they do on cold windy days, or on snowy days. Some stood about hunched up with feathers fluffed out; others picked at the grain which I had scattered there the night before, but they ate with none of their usual eagerness, none drank any water. A moment later they all ran off into the tall grass, toward the n.w. corner - all but one ♂, who stood in hunched, listless pose, with feathers fluffed out, for several minutes in the open, far behind the rest, until I scared him and he ran off. A hawk could have snatched him up rather easily. I should think

Photos taken of the area down hill from the



lunk house, which has been cleared of  
trees since the first photos were taken  
a few months ago.

Ward Russell (M.V.Z.) has just  
been telling me about the effect of  
exposure mental conditions on quail  
which confirms my own findings,  
as follows:

1. The observation center around  
Santa Cruz, where Ward Russell's father,  
a former market hunter, has lived  
and watched the country change for  
years. ✱
2. Formerly the quail used to be  
abundant in the hills of that section,  
and it was not uncommon to run  
across a flock of a hundred or more,  
although most of the flocks numbered  
nearer to fifty.
3. In those days - up until about  
5-6 years ago - the flocks were num-  
erous and near to each other, each  
open ridge and hill slope having one  
or more coveys.
4. Within the last 5-6 years, how-  
ever, due to the slump in farming.





this country, which was formerly kept cleared of brush, has been allowed to grow up again unchecked, so that now the baccharis, shrubs, and vines range from 3ft high to above one's head, and the former open areas have nearly all closed up into jungle.

5. With this influx of brush and disappearing of open areas, the quail coveys have become steadily smaller, and the distances between them larger. It is as if they were being choked out.

6. That this decrease is due to the change of environment and not to hunting or to predatory animals seems clear for the following reason:

(a). No hunting is done, as has been for some years because (as in Gilkey's territory, see ante) the brush is too thick to permit quail shooting.

(b) Predatory animals are not very numerous, and have not increased much during recent years.

7. Water has been and continues



to be abundant, so that it has probably not been a factor.  
8. Since the brush has attained such a height that there is very little vegetation close to the ground, the rabbits have also become scarcer.

Of course, before California became settled, vast areas which now have become towns, orchards, etc. existed as densely brushy areas, yet one reads of the enormous abundance of quail in those times.

This anomaly has always puzzled me, but Ward suggests that in those days there were many natural open areas where the brush did not grow, and that these were used by the quail. Of course these natural open areas were the ones to be settled first and most of them are still in that condition at the present time.

Linsdale says that in those early days a climax condition of plant species existed, whereby most areas were covered with a diversified, open



type of brush and not by thick stands of one or two species, such as characteristic sub-climax stages.

After grazing, burning, or ploughing, the brush that comes up is composed of only a few species (as for example *Baccharis* on Ralph Estate) and is not only much denser, but offers better food facilities. Linsdale says that today, as a result of repeated changes in brushy areas, caused by man (as clearing and then lapsing back again into brush), the state as a whole is probably covered with a much thicker type of brush than before the country was settled.

See Cooper, W.S., 1922; Clements, F.E., 1920; Sumner, F.S., 1911, for data on original chaparral conditions. Also see Bailey, V., 1923, for "Sources of water supply for desert animals."

Sept 25. Strawberry Canyon, Berkeley. E.S.S. caught 2 small quail which he judged to be about 3 weeks old. They were still in the brown (juv.) plumage.





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Sept. 30, 1932. Alpine Creek Ranch. Went hunting for quail for about  $3/4$  of an hour just before dusk (ah. 5:45 - 6:30) this evening, but got none. The covey I hunted was ~~the one~~ by the water trough just north of the Los Brancos Road junction. It was only about 50 feet from the place where I found it last time - about a week ago.

Oct. See Butts p. 50 for account of the presence of at least 10<sup>th</sup> coveys in a circle of radius  $1/4$  mi. This huge number is from the quail point of view another reason for thinning out the brush.

See Butts *L. californicus* p. 137 for account of a red tail trying to catch quail (unsuccessful, however).

~~October~~ The Q. I. birds drank during the late afternoon today, showing that they still have this habit although the weather is much cooler than heretofore, with heavy dew during many of the nights.

The cu ca cow calls of quail all



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through the region are becoming more and more frequent, as I had predicted

Oct 13

October 13, 1932 - Alp. B. R. I note an increase of gregariousness these days among the Q.D. birds and also the outside quail. Frequently in the morning a covey of outside quail (the ones that feed at the door of the cabin) will feed along the w. side of the Q.D., particularly at the n.w. corner, near the willow thicket and when they do this, the Q.D. birds congregate along that side, and as the outside birds move along <sup>feeding</sup> the fence, the Q.D. birds keep opposite them, also feeding. There is none of that frantic pressing up against the fence shown by the rival ♂s and anxious ♀s during the courting season; the birds on each side of the fence simply try to stay in each other's general vicinity. Occasional an outside ♂ will fly to the top of the Q.D., apparently to do sentry duty, but he does not seem





to want to get inside particularly.  
This morning <sup>at 9 A.M.</sup> I witnessed this gregarious  
habit again, just as described above.  
The c-a cawing was audible several  
times from outside birds both far  
and near at hand, and twice the  
R♂, standing atop a spray of saw  
claws, answered them. This tendency  
of the Q. I. birds to keep near the  
outside birds (and the reciprocal  
attraction of the outsiders) is in  
contrast to the indifference shown  
by the Rps. to outside quail during  
the courting and laying season last  
spring.

The Q. I. birds were feeding on <sup>young</sup> tender  
grass shoots, and on the buds of tarweed  
(*Heimizonia congesta*) while I watched  
them. The *Heimizonia* buds they ate of  
repeatedly; the young grass they got at  
the drinking fountain overflow. At  
other places where water is, or was  
until recently, on the Alp. R. P., young  
grass shoots, and shoots of weeds, are  
growing up already - notably along  
the drainage ditch below the swim-  
ming pool. Such succulent vegetation



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is presumably <sup>specially</sup> sought after by the quail at this time of year, when it is at a premium. The <sup>93</sup> birds drank one or two sips (but only some of the birds) of water, but only a small amount as compared with earlier, when the season was hotter and drier. At the time, vegetation was wet and glistening with dew at the time, and it would have been impossible for the birds to eat any without taking in some of this moisture. This dew is getting to be characteristic of the ~~breed~~ nights now.

The outside birds, mentioned above had spread out into the feedpats and were feeding there (lots of *Pennis*, *Anthus*, *Hesperis*), when I appeared and caused them to retreat into the willow thicket.

After about 20 minutes I suddenly heard a <sup>series of</sup> frightened p-p-p, p-p-p from the quail in the willow thicket, followed by a number of pit pit - then silence. Undoubtedly the Cooper hawk, which I have seen over here so much, was after the birds again. I didn't actually see him however.



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In the meantime the Q.B. quail, which had been feeding in the open, had suddenly ~~started~~ dived into the tall clowers and vanished - nor did they make a sound either. I think they did this not from seeing the hawk (for I couldn't see him any where), but because their friends in the willow thicket, 200-300 ft. away and out of sight, had given the alarm call.

There were at least two jays in the tree tops above the willow thicket but, as usual, they helped not at all in warning the quail.

October 15, 1932 Observations on Q.B. birds:

5:15 P.M. Started watching at 4:30, when no birds were in sight, and they did not appear until just now. The sun at this season leaves all of the ground in shadow after about 4 P.M. The birds had been at the n.w. cor. of the Q.B. evidently, for suddenly they came flying and running from there with loud pit pitting. One would have thought something had scared them were it not for the



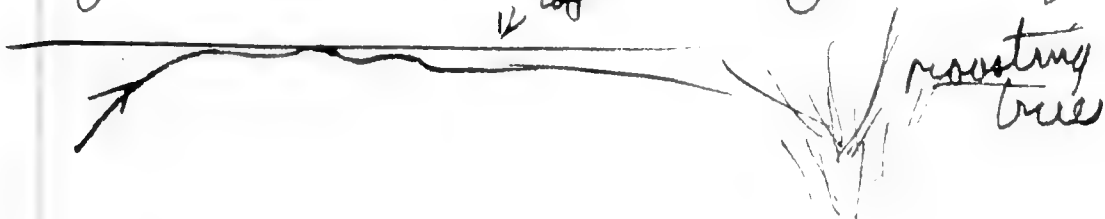


fact that they all alighted on the  
open, under the main window  
and while some continued to pick-  
pick the majority fell to eating  
at once. Maybe they make a high noise  
"for no reason" sometimes, like  
white leghorn chickens.

5:30 - Four or five of the birds  
went to the water fountain and drank  
a few sips each, the rest not drinking,  
but feeding nearby.

5:45. The next went to drink. During  
the interim between 5:30 & now the  
whole covey ran along the <sup>near</sup> fence past  
the gate, along the s. fence, and then  
came running back to feed again.  
At the time I could see no outside  
quail near <sup>p.m.</sup> to come there to do this.

At 5:47, when it was as dark as it  
used to be at 7:50 P.M. in summer,  
one of the birds crouched for an instant  
and then launched into the air toward  
the roosting trees. It hit the wire top  
but not very hard as it checked its  
speed <sup>it changed direction</sup> somewhat just before hitting:





at 5:48 the rest of the flock <sup>[semiotone]</sup> suddenly sprang into the air and followed no 1. They did not start exactly all at once, for I noticed a slight delay in the taking off of one or two of the birds. I don't think that the "telepathy" shown by certain species watched by Selous is very noticeably developed in quail.

One bird remained behind, standing motionless, where the nest had been. A half minute later he too took off. Some of the birds, in the covey, bumped their heads on the ceiling lightly, like the first bird.

5:50 a commotion can be faintly heard from the trees where the quail are roosting — low pit pits, and rustlings, and glimmies, too, of an occasional fluttering form. The birds are settling themselves for the night into their usual saftings from branch to branch. It is deep dusk. The "evensong" of towhees and golden crowned sparrows is audible.  
5:57 P.M. Dark. All quiet from the quail roost.





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October 16. 17<sup>th</sup> m.

5:50 faintly light - about equivalent to 6 P.M. last night. The early morning bird calls are audible all about, but no sound from the quail.

6:53. Heard the first sounds from the quail just now. There were some faint pit pits, some shaking of branches, and then I could hear a fluttering of wings and a thud of bodies landing on dry leaves. The birds were only just descending from their roosts. They did not appear in sight, nor did they make any more sounds. Later I heard them over at the n.w. cor. There is thick cover there, but, also, this is the first place inside the Q.D. that gets the early morning sun.

Ab. 9:15 Still no sign or sound of quail. Left until ab. 10:45.

Still no sign of quail when I came back (by a roundabout way so as not to scare them). Today is cool (69.0 at noon), and windy, which probably helps to



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keep the birds quiet.

Photos  
taken of Ralph  
Rorick - Barn  
1/2 - from top  
of Nielsen hill.

3:40- No birds have been to the Q.D.  
water fountain, as even appeared in  
the open at any time so far today, although  
we have kept inside the shack almost  
the whole time. The dew, the cold, and  
the wind, have undoubtedly prevented  
them from wanting water. Observations  
ceased at this time.

October 19, 1932. Alp. Co. P. Hunt hunting for quail ones  
on the other side of the ridge, where I have tried  
for quail before, without success, and got four  
this time (see map III). They were in the same  
patch of brush, only further along the hillside  
by about 125 yds. The covey must number  
close to 50 birds, and has evidently received  
considerable additions. The getting of the  
birds was partly luck. I discovered the covey  
by hearing their pit-pitting (which they  
did not utter until I had walked past  
near them and had been gone several  
minutes! When I first went by they  
had uttered not a sound). They were  
in the dense tangle of brush on the  
hillside, out of sight. However, it  
was almost dusk, and there was  
only one roosting tree anywhere



near them. This was a tall bay tree  
Cub at it was doing out on a brushy  
hillside (Don't know), and <sup>close by</sup> underneath  
it I squatted. In less than 5 minutes  
I heard loud calls approaching from  
several sides at once, and all at once  
with a roar of wings that at close  
range had a crisp fanning sound  
a covey swept over the brush tops  
and started to alight right at my  
feet. Some of them saw me, however,  
and with a frightened new-new  
call (Cooper hawk call) the majority  
of the coveys screamed, and rising, thundered  
on. Several had dropped into the brush  
at the scare, as they would have done  
for a Cooper hawk, but this was a  
mistake, for I trailed them. A moment  
later several other detachments also  
flew in and started to alight, but  
~~saw~~ me and moved on like the first  
bunch - with the same results. The  
whole bunch settled up on the hillside  
where they used to roost, and there I  
got one more, a ♀ which foolishly  
alighted in a tree as I crashed through  
the brush toward the coveys. Alighting





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in trees is not often done by quail when they are scared; presumably the danger from hawks is too great.

The weights etc on these birds shot is as follows.

Sex	Weight	Remarks	all shot about 5:30 A.M.
♀	✓ 166.4	Moulted practically completed. a few perfect feathers on chest, and quite a few on lower flanks and on legs; the rest all matured feathers.	
♀	✓ 162.3	Moult slightly less advanced, but some areas affected	
♀	✓ 165.7	This bird is just replacing one of the "1st 3" primaries mentioned by Stoddard as showing difference between imm. birds and adults! This may be caused by accidental loss of the feather. Moult of body feathers less advanced than preceding.	
♂	177.1	This is the first ♂ I have seen to weigh more than a ♀ for a long time. It, too, is replacing the third primary, on each wing; must be an adult. The "1st two" primaries have not yet been molted; they seem to be pointed. Body moult about as in ♂ immediately preceding.	

October 20 - Cold and sunny, even at 9:45 A.M. The Q.I. quail seemed affected by this cold, for they did not appear or make a sound until about 9:17 A.M. at this time I made out two ♀s



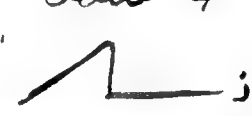
standing hunched up, with feathers puffed out, so that they looked like balls of feathers, at the edge of the open space. They made no attempt to feed, although grain (put out by me last night) lay scattered no more than three feet from them. The sun was shining on the ground about four feet from them, but even so they made no effort to move out of the shade into it.

9:35 A.M. Eight of the birds now out in the sun, feeding on the grain which I scattered there last night. They are fairly rowdy. The BO<sup>♂</sup> goes to the water fountain and takes 3-4 sips (there was not much, if any dew last night; no <sup>fog</sup> clouds rolled in). Suddenly there is a "new" call from one of the birds, and like a flash the flock turns (almost) as one bird and dives out of sight into the tall grass. I can see no haunch or other cause for fright.

Took photo  
of weed seeds  
at creek  
bottoms

The weeds were: Tarweed, Dock, Hordeum murinum, Epilobium, ~~Sonch~~ Pteris, with others near at hand. Showed open type of country, also.



October 27, 1932 - exp. Q. R. The quail are certainly extending their range into a type of environment not used by them earlier in the year; this type is Rhamnus - Arbutus - Quercus (black) - Rhus, Rubus, - Lonicera; etc - woodland, where the shrubs are close together, with many tangles, making an extensive, dense, shady undergrowth. Very possibly the small berries, Lonicera fruits, and such forest products are attracting them. ~~There is a~~ I saw a group of about 4 quail in the <sup>wooded</sup> road by the "deer trap" ; also, there was a covey of 15 or more birds in the woods by the Q. J. "garage". A covey also hangs around the willow thicket just n. (x n.w.) of the Q. J. Then there was a covey in the woods where I went hunting this afternoon, also (see below).

I note also that most coveys now are larger than family groups, often numbering 30-40.

The Q. J. exp. feed patch continues to attract quail; also, flocks of golden crowned sparrows, <sup>and</sup> some song sparrows and towhees. These burst out of the tall





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grass (*Avena fatua*) and weeds (mostly *Pieris*) when I pass by, with a regularity that seems there to be constantly present on the area.

Eddy says that quail at Mills College seem to be eating acacia seeds. She saw numbers of the birds picking up food beneath the trees, where the ground is always devoid of other vegetation, and when she ventured there to investigate she could find nothing there but the acacia seeds.   
yes! Perhaps this is the reason for the frequent presence of a covey of quail in the brush along the edge of the thick stand of acacias where I parked my car at the city R.R. The birds remain at the edge of the brush where it terminates at the commencement of the acacia tree dump; evidently they use the brush as a basis for sallies out into the open.

Went quail hunting on the "Pasky Place" section of Ralph Ranch (see Map III), Buster McTellan told me that he saw a large covey right by the main gate at noon, when they



were going to water. At about 3:35 P.M. I started looking for them. They were not at the water which is in a dump of Buckeyes, with Tubers all around, but were down hill from there, in the same canyon, about 200 yds away, at the edge of a small grassy area bounded by live oaks, snow-berries, and other undergrowth. At my coming the whole covey scampered further down into the canyon where the snow-spruces, cream bush etc was thicker. In this tangle they stayed for 20 minutes or more while I walked around it. They kept to the ~~op~~ side opposite from me, as I could tell by the loud rustling noises which they made in scampering through the tangle. Finally I walked through the middle and at that they flew in scattered detachments up into the live oak trees. Here it was impossible, also, to see them even though I knew that I was within 60 ft of some of them. For about 1 1/4 hours I stood stock still on the steep leaf strewn ~~hill~~ canyon side beneath the rapidly darkening canopy of the trees, waiting for the birds to



abandon their "freezing tactics". I had made a quail call, and this I used frequently during the time. Often I would get responses from nearly birds in the trees, but one particular bird which was <sup>still</sup> nearby, and which I couldn't see although it could evidently see me, kept giving a low, yet far-carrying, chucking ~~no-no~~ (the danger call) when ever these other birds started to call, and almost invariably they would become silent and remain so for five or ten minutes here - after - it did indeed seem as though the chucking bird which was the nearest of all to me, was warning the others. At last certain birds from far distant trees came to the ground, and one of these came running past near enough for a shot. At the shot the other birds gradually flew or ran away (most of them had already gone by this time), and I saw no more of them. It was now dusk, about 5:50.

The single specimen was as follows for measurements:





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Sex Weight Hours Date Locality  
 ♂ ad. 179.4 ad. 5:30<sup>P.M.</sup> Oct 27 Bishop Place,  
 wooded canyon  
 below house canal.

Remnants - Molt complete except  
 for one or two scattering pinfeathers on  
 the tarsi and on back of neck. The plumage  
 is markedly fresh and brilliant.

Nov. 5, 1932. About 3:30 P.M. I found two quail  
 in my <sup>W.B.B.F.</sup> sparrow trap which has been  
 kept set for several weeks, under  
 the willow tree below the plumage, for  
 sparrows to feed the sp. hawk. Data  
 are as follows:

- No. Color Sex Weight Remnants <sup>!! (later)</sup>  
 7409311 blue+yellow, l. ♀ 176.2 Was this in? No baron  
 abula, but baron all the first set of  
 upper primary coverts. Molt practically  
 complete; only a few pinfeathers (1 or 2) on  
 legs.

7409315 blue+yellow, l. ♂ 176.1 Same condition of  
 moulting and of molt as in preceding.

5:26 P.M. Q. I. quail went to roost. This  
 is early; however the light intensity is  
 about the same as at 7:50 P.M. during  
 June. It was not cloudy at the time.

Nov 6, 1932 - See under "Changes in environmental  
 conditions," p. 2 for note on the lack



<sup>the first</sup>  
of green grass until about ten days  
after a heavy rain.

November 23, 1932. Alp. B. R. Watched the quail just  
for a moment at dusk. At 5:17 P.M.  
when I arrived, they were all feeding  
in the open space around the water.  
Three of the birds took a sip or two  
but the rest did not. However, I  
do not know, of course, whether or not  
they drank before I began to watch  
them.

At 5:17 it was deep dusk - somewhat  
deeper than on many days this summer  
when the birds went to roost. First  
one, and then two more, and then  
the rest went to roost. Many  
fluttered along just below the top  
wires thus:

showing that they would have gone  
to roost higher than they did if it  
had been possible. Some of these  
must have been young, in  
which case the tendency to fly high  
(above 6' ft) to roost must be  
regarded as instinctive, since neither  
they, nor their parents since they



were hatched, have ever gone higher than the top of the wire.

For some minutes there after there was the usual shifting about and flitting.

See *Accipiter* p. 16 for account of still another attempt of a cooper hawk to catch quail.

Gordon True tells me that the quail in Southern Calif. (vicinity Los Angeles, San Bernardino) ceased coming to his drinking fountains as soon as the first rain fell, and that they have not been back since. Prior to the rain their tracks, wallows, and feathers, were abundant around the fountains, but there have been none at all since then.

He says that old timers have told him that *Eriogonum fasciculatum* is a good quail food. Also, that whereas Gambel quail do eat the seeds of the ~~creosote~~ <sup>marguerite</sup> bush, the valley quail do not do so.

November 24, 1932 Tonight the quail went to roost at 5:11 P.M. It was somewhat





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cloudy, which probably accounts for the earliness as compared with last night (6 minutes). The "even song" of *Zonotrichias* and *lutes* were in full blast, with these birds surveying around at the last minute for roosting places.

Nov. 25. This evening (4-6) I went hunting for quail over on the west side of the ridge, along the Mindes road, where I have been hunting before. The covey was about the same size, and was in about the same general location as before; also, it was fully as secretive, so that I walked about in the general vicinity of it for about an hour, and only located it at last from hearing an almost inaudible *no-no* about 100 ft down the slope from where I happened to be standing.

When I located them it was so late that I decided that my best chance for securing some was to hide by the lone bay tree, where I did last time (see ante), on the chance that they would go to roost in it. I



sat and called under this tree until dusk, getting replies from this covey occasionally, and more frequently from another group  $1/5$  of a mile away on the other side of a canyon, but no birds came to me. Except in the breeding season, it seems, one can't get quail to come directly to one unless they happen to be going in that direction anyway. ~~it seems~~.

Just at dusk I suddenly discovered the covey I was hunting part way out on a wide, dry, practically bare flat, moving in a compact little group, and feeding as they moved along. This flat covered more than an acre, and was so bare that even I could see the birds (as well as hear them) plainly from a distance of about 200 yds, in the uncertain light of dusk. Pyo-horned owls were hooting from the canyon adjacent to the flat, and it seems as though chance alone prevented them from swooping upon the unprotected quail covey.

During the next few minutes the birds walked, still in a little compact



grazing, completely across the flat - apparently feeding hastily along the way. They did not even keep quiet, but gave the pit-pit call continually, as well as the conversational "peeping" call given by feeding birds. At the opposite side they slowed up and fed in one place along the fence, still in the open, however, for nearly ten minutes, after which, with a whirr of wings they rose in one body and flew to the big brush patch again, where they alighted in and around the two deeper but denser "suckeye" trees situated in the heart of an impenetrable poison oak tangle, and surrounded by dense baccharis, where they have gone to roost other times previously.

I approached and tried to scare some of the birds out of the brush into the tree tops but they would not move on account of the lateness of the hour (= darkness). I got none at all.

I think that the quail coveys may have been obliged to make the long trip out into the open in





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order to get seeds for their seed time meal, because seeds were no longer present close in. This is only a guess, for there is no accounting for the vagaries of quail behavior, however it has some probability due to the fact that flocks of sparrows also feed in the area, and of course gophers and mice are abundant as well.

Nov 26, Alp. G. R. Am watching the Q. J. quail all day today.

6:40 A. M. Still <sup>somewhat</sup> dark, but the sky is bright in the east. It is already overcast however, indicating stormy weather is at hand. Towhees and Zonotrichias are giving their maternal serenade; the Q. J. quail can be heard giving their low chuckling noises, but as yet they have not left their perches.

6:48 First quail flew to the ground, followed shortly by others. Low pit pits accompany this activity, I suppose to keep the flock together. Two of the birds flew directly from their perches to spots 40 feet distant; the others alighted beneath their perches and moved



off on foot.

7:30 The <sup>Q.B.</sup> quail have not yet come out into the open to feed; no sounds are audible from them. The first cuckoo heard from outside birds.

7:45. Heard a pit pitting for a moment ~~up~~ from the Q.B. birds; don't know the cause. (but see below).

7:54 A.M. More pit pitting, and for just an instant I saw a cooper hawk sailing out of sight over the trees.

8:54. The Q.B. birds have at last come out to feed. It is warmer, and the sun is shining fitfully. Quail are not early risers, Don McLean to the contrary, as compared with other birds. There are always lots of sparrows, towhees, and others flying about actively in the morning before the quail leave their roosts.

In the evening the quail <sup>always</sup> almost always go to roost, before these same passerine birds.

Most or all of the Q.B. quail drank, fed in the vicinity of the water fountain for a moment, and then moved over to the green



sow lower patch to feed. The lower  
is in leaf and also in seed at this  
time.

The previous temperament of quail was shown by the way two quail that were standing side by side suddenly darted into the tall grass, although I could see no cause for alarm. Other quail near by did not follow this example. Presently all disappeared.

10:16 Quail in sight at edge of open  
space again, feeding. The B ♂ and R ♂  
took about 10 sips each at the fountain,  
the R ♂ eating some tips of the young  
grass which has sprouted around  
the water dish.

10:32 Still in minority. The B+W ♀ drank.  
Some outside birds called, the Q.I.

Lands answering with low crests.

1024 The following birds drank <sup>enough of</sup> ~~about~~ 4-5  
sips each: Y♂, W♀, Y♀, W♂; the B♀  
drank 14 sips. One of the young dust-  
bathed while the others fed near by, as  
above.

10:31 B+Y ♀ drank 6 sips. Many quail  
jumped for and ate <sup>large</sup> ~~large~~ blossoms  
~~these~~ <sup>many</sup> ~~very~~ now past anthesis, and ~~being~~  
these remaining blossoms <sup>being</sup> represented by





stunted, unexpanded buds. Many of the birds fed on clover.

10:45- The outside guard have been calling for some time, and at this time I discovered at least four on top of the Q.D., with others along the e. side and n. side. They all walked about, pit plitting in low tones until suddenly a sparrow hawk appeared 100 feet away (see under *Certhia* p. 84), whereupon they vanished precipitately and utter silence reigned.

12:05 P.M. The pit plits following the sparrow hawk scare are just commencing; no birds in sight, however.

12:56 Back into view again. B+W ♀ drank about 5 sips; W♂ about the same; the R♂ probably drank too, but was not observed until he was wandering away from the fountain. Others of the flock near by but not in sight. One of the ♂s snatched a leaf of *Pieris* from the plant and swallowed it.

1:02 A golden crowned sparrow which has recently got into the enclosure drank now for the second time this ~~day~~ <sup>day</sup>. (first time was at 10:22 P.M.). The B♀ also drank, and repeatedly



ate at a *Pinus* blossom until it was all gone.

1:03 R & P ate *Pinus* leaves

1:10 The sky has become overcast and the landscape gloomy. This is the sort of weather wherein quail are silent, and accordingly, I have heard no more cacacoring from outside birds for sometime. Law as fine of the birds are still feeding at the edge of the clearing.

1:14 Something must have scared the quail for they left for the brush on the E. side with a whirl of wings.

2:15 Can hear the birds scratching and peeping in the tall grass just no. of the S. E. P.

2:28. Out to drink again! :

Bird	No. of sips
R♂	3
B♂	2
W♀	3
W♂	3
Y♂	4.

Others drank, probably, but I failed to see them; one or two I think did not drink, however.

One of the birds ate of the grass shoots at the water dish.

2:33 The convey drifted over into the

later:  
no more  
up to 3 P.M. at  
last)



some clover patch, where they ate clover leaves and seeds. The seeds are so abundant right now that 3 males stood side by side and picked steadily for several seconds without having to move.

2:37. All at once one of the birds yelled ~~he~~ <sup>he</sup> ~~grrr~~ (or ~~no~~ in the tone of danger), whereupon the whole flock except one ♂ <sup>colored</sup> flounced out of sight into the clower. The one ♂ left just his head out for awhile, but shortly ducked out of sight too. Probably it was the ♂ sparrow hawk coming around again.

2:39. Three females have emerged from the clower, all the rest of the coveys still being out of sight. I thought females were supposed to be more timid than males.

2:43. All are out again but some one of them yelled ~~he~~ <sup>he</sup> ~~rrr~~ Cor "soram!" and all ducked again, except one ♂

2:46 Again some one yelled soram, and now all are out of sight except the R♀. It is the ♂ sparrow hawk back again.

2:50 The R♀ has stayed on top of the clower,





all this time, while the hawk is perched about 200 ft away in the top of a tall tree. Some of the quail have sneaked out through the long grass into the dense brush at the e. side of the Q. D., and are calling from there. A few still in the brush answer. The R♀, on top of the clowes, pitpit; the hawk holds his position on the tree top.

2:52 The R♀ gave the scream call and ducked, but immediately reappeared again and stood for a long time (2 min) pitpitting; all the other birds were out of sight. At last she too disappeared and after that all was quiet inside the Q. D. The sparrow hawk still held his post. They must have all seen him, all right.

3 P.M. Sp. hawk still there; most or all of the birds have crawled through the grass toward the e. side where the dense brush is.

4:20 They have appeared again, in the clowes - at least 4 of them have. That they are still uneasy (perhaps).



is indicated by the fact that one of them gave the *no-no* call, after which there was silence for a time.

4:26. Five now visible

4:50 Still feeding; 8 in view. Some picking for tanned blossoms, others eat clover.

4:52 The following <sup>male</sup> ~~heard~~: B♂ (9 sips), B♀ (4 sips), R♂ (ab. 5 sips).

4:53 Heard a noise (sp. hawk?) - and all the quail ducked out of sight into the clover and weeds; one ♀ was visible; she was "froze".

5:04 Two ♀s came out of their freeze and are feeding, but not in conspicuous places, now another ♀ appears. The first mentioned (4:53) ♀ has also unfroze. The ♂s not yet in sight.  
~~The sky is~~

5:07 One ♂ visible for an instant, now three are out, now four. A scattered pht phth from the group follows this occurs after almost every scare

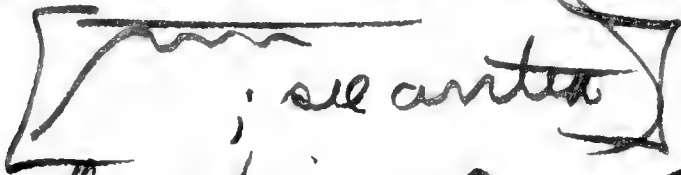
5:09 All are feeding; the B♀ took a dust bath.

5:11 All went to drink; each bird took four sips except one that took five - as far as



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could see. The little golden crowned sparrow came and perch with them, or rather after them.  
5:14. For about 2 minutes they all fed in a little compact group on the fresh young grass tips growing by the water dish. Then they began to move off, straggling, toward the brushy E. side of the Q. It is deep dusk; a little deeper than on most nights this summer when they have gone to bed.

5:15. All but one suddenly took to the air in a straggling line and flew, some more or less uncertainly,  over to the moorish

location. One ♂ was left standing in the open near the fountain. Not all that flew alighted in the brush, for a moment later one was observed to fly up from the ground just below the brush into it. Several changed their places (they had alighted in a scattered line about 35-40 ft. long), one even flying ab. 25 ft. at





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last seen the ♂ that had been left behind followed them.

5:20. All has been quiet for at least two minutes.

The day is done. ~~The~~ <sup>few or no</sup> passerine birds are to be heard, even (but then, it is a chilly, somewhat <sup>evening</sup> cloudy).

It is surprising that the Q. J. quail should drink water so regularly when there is a large amount of young, succulent vegetation around the drinking fountain and against the fence, where the overflow from outside (the shock water system) seeps through. Besides grass there is chickweed, *Pieris*, *Artemisia* *catula*, and probably others, not to mention the patch of sour clover.

I should explain the use of water by these quail in spite of the green vegetation as follows: The birds do only a part of their feeding around this vegetation. More than  $\frac{3}{4}$  of their time is spent in other parts of the Q. J. where there is no lush vegetation. At these other places they get only dry seeds to eat, and the consumption of these (evidently)



demands the taking in of water.

Nov. 27, 1932

Went hunting at the "Pashy Place" Alpine Creek Ranch, from 9 until 12. It was drizzling part of the time and part of the time raining, with the wind blowing over the more exposed places all the time (see weather notes this date), so I had more than usual difficulty.

Buster McMillan said he saw the coveys by the gate (I got one last time there) going to water the evening before, but although I searched all up and down the canyon I could not find them today. As Buster said, they were claustrous <sup>still</sup> sitting in the brush with their feathers all fluffed up, and I probably passed close by them without knowing it.

Buster said that there was a covey at each of two springs in two different pastures back of the house, but that they were very wild. I did not get over to the farther of the two, but I located



the nearest by using a quail  
caller. The birds would not come  
to me, but they did answer  
from about 200 yds away,  
even though the wind was  
squashing through the trees and  
the rain coming in gusts.  
The birds turned out to be wild,  
afright, for they jumped out of  
the dense thicket where they had  
been hiding (the thicket was in a  
little hollow, quite sheltered from  
the wind), and instead of remain-  
ing in the vicinity, hunking out  
of sight in the dense tangle of  
pawson oak, they immediately  
went down the willow-filled  
gulch, most or all of them flying  
100 yds to 200 yds, although I  
was 75 feet from them at the  
time. When I tried to locate  
them in the great "forest" of willows  
and vines into which they had  
gone, I found it hopeless. The  
forest covered an acre or more,  
extending into the main woods,  
over, and the birds made not





a sound to indicate their whereabouts. I waited for three quarters of an hour in the adjacent oak woods, and was rewarded by hearing the get-together calls of the scattered coveys from close by, but although I called back, none came to me, and when I went over to them they were again silent, so that I got none. Since it was now raining rather briskly, I went home.

At about 4:30 P.M. I looked for quail down by the N. boundary of the ~~egg~~ quail census area (where the cutoff and the old road up from Ralphs main gate join). This is the covey from which I have already taken one or two (2 I think) birds. I found them in short order, down in the riotous tangle of weeds and shrubs which I had photographed not so long ago as being an ideal feeding ground for quail. The cover was so dense that I only saw one bird long enough to get a shot, and did not see more than one other bird out of the whole flock, although I



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heard a few others. Like the other  
coveys, these bugget the bunch and  
would not leave it even though I  
manned through some of it. Quail  
hunting in stormy weather is  
indeed tough. The one bird that I  
got will be mentioned below. (p. 416)

Edith took some notes on the  
Q.J. quail during my absence and  
these, transcribed and enlarged from  
the original, follow:

9:45 A.M. Quail feeding in and adjacent to  
the clover patch.

9:50 Gone from view into the tall dry  
grass.

9:55. Some of them in view once more,  
over by the gate end of the patch.

10:10 Several run across the open  
space where the water is, but do  
not stop to drink. Later two more  
follow, one of which does stop,  
and takes 4 sips (the R.J.), finally  
joining the others.

10:50 One glimpsed again, feeding in  
the tall grass.

1 P.M. It has rained lightly for a brief  
moment, and is still sprinkling.  
All ten of the quail seen feeding



near the water fountain; three of the birds dust bathed. [Probably the dry earth makes a better, that is more comfortable, medium for dust bathing when it is moistened slightly. I think I have noticed that domestic chickens use it more when it has just been moistened].

1:05 Sprinkling stopped; quail still out feeding; more birds dust bathe.

1:07 The main window of the shack was opened while the birds were feeding in the open, 15 feet away, and yet they did not take alarm! This is the second time today that this has happened. The screen is not moved during the process and so the quail do not see the observer, but they can see the window frame sliding across the outside of the screen.

10:10 The coveys marched in single file over the lower patch, where they fed on leaves of clover and also on grass blades. Observations ceased.

Nov 28, 1932. Went hunting again, over on the w. side of the ridge. The





weather was beastly, being cold, windy, and with the sky very dark! I spotted the quail by their calls while I was still coming down the road, and by crawling along the road on hands and knees I managed to get close to some of them. A little group of three or four flushed from the edge of the road before I could get a shot, and flew across into some thin brush up the hillside; I never saw or heard them again. The main group answered my calls many times, but they would not come out of the brush, although I waited until dark. They were so secretive that I could not even tell where they went to roost, although I think they surely roosted in the dense poison oak where they were.

Once while I was waiting, a red tail, sailing low, but 200 yds or more away, caused them to plit plit excitedly and move



further into the brush. The red-tail never came near them.

November 29 - A hellish, raining, windy, cold day, ~~such~~ on which I fruitlessly tried to shoot quail from 8:30 until 12:15. I located <sup>with my quail caller</sup> a covey about, down in the densey grove up gulley which separates the corn field from the Ranley field. This tangle of wild blackberry, wild rose, snow berry, passionah, coffee berry, calif. Laurel, and others, was to be sure a nice, calm, warm as has very shelter, offering considerable food, but for me it was devilish. Several times I heard quail right in front of me, and even glimpsed one momentarily, but they would not leave, and would not make a sound while I was close by. I have at last been forced to accept the fact that it is impossible to hunt quail in the rain, at least without a dog.

Some notes on the Q. D. quail follow:



9 A.M. Drizzling, cold, windy. The Q. D. coveys came out and fed, at the usual time it will be seen, in the open space. Their backs, heads, breasts, and flanks were bedraggled from their striving to push through so much wet grass. Interestingly enough, the golden crowned sparrow that is in with them is dry, as are most of the juncos and sparrows that I have seen round about this morning. Perhaps the quail get wet because of their exclusively terrestrial mode of progression, together with their larger size, which requires brushing up against vegetation through which smaller birds could pass without contact.

The sparrow hawk which is kept now in an outdoor cage 20 feet from the Q. D. yelled klee, klee, klee, several times, but the quail paid no attention beyond momentarily raising their heads at the first cry. When the quail are at a certain place





in the Q. D. <sup>box</sup> can see the sparrow hawk, and usually give the alarm call and hide under these conditions. Apparently they could not see the hawk from their location this time, however. They ate quantities of sprouting grass tips.

No water was taken by any, although they fed near it.

12 M. Raining lightly but steadily.

The birds came out again, feeding as before, and as before, they took no water, although they passed close to the fountain. This is natural enough, since every mouthful that they take in is sopping wet.

1:50 P. M. Out once more. They ate grass tips, clover leaves, chick weed leaves, tar weed (seeds?), *Anthemis cotula* seeds (both these two last by picking at the dry heads which still contained seeds, apparently). Grass tips were eaten more than any of the other items listed.

Again the sparrow hawk called, and again they looked up for a



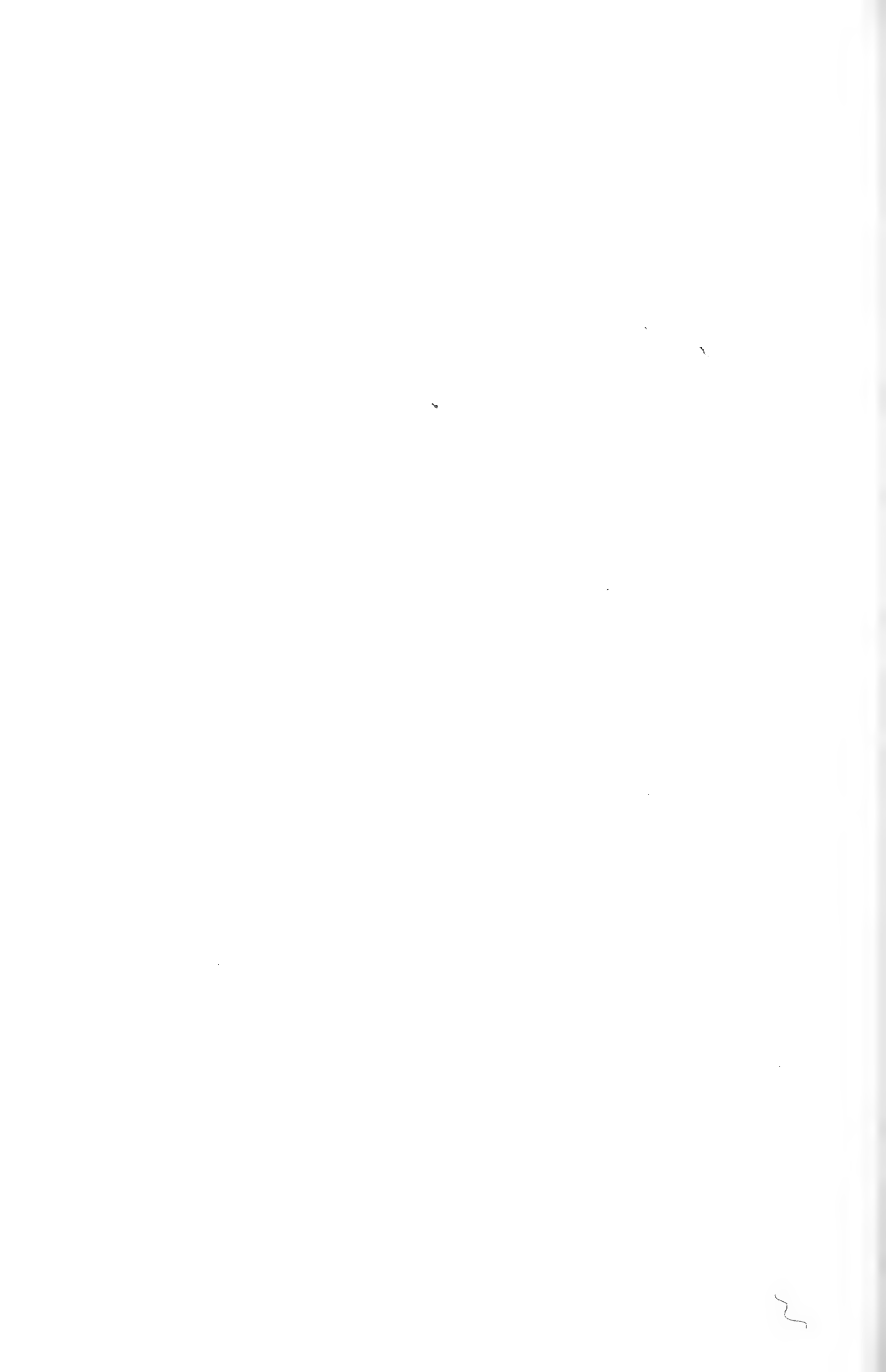
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fraction of a second, only to resume feeding. Of course their indifference to this cry may only mean that these particular quail have become used to the constantly uttered note of this particular sparrow hawk, and does not indicate that other quail do not show alarm upon hearing the cry of a sparrow hawk.

No water was taken this time either.

3 P.M. Out once more, feeding. Five minutes ago I passed within fifteen feet of some of the Q. J. quail as I streaked along the back (east) side of the enclosure. They were in the tall grass and were not aware of my presence. The rain, in softening the ground, deadens footfalls, even on dry leaves. Also, the rustle and patter of the rain, together with the noise of the wind, if there be any, all conspire to prevent the birds from hearing the approach of an enemy. Perhaps this is one of the reasons that the quail



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are so loth to leave cover on stormy days.

3:03 Someone said "scream!" and they all did.

3:08 - Feeding again, at least some of them are.

3:13 - Still feeding. One or more of the birds moved to where it could see the sparrow hawk where upon it started pit-pitting. The other birds, which were not where they could see anything, kept right on with their feeding, however. Presently the pitting bird became quiet too, and all continued to feed, sometimes stopping and standing hunched up doing nothing, or else preening.

3:45 They were still feeding, but I scared them by walking near that part of the Q. I. where they were. All flew, but the B♀ must not have gone far, for 30 seconds later she was feeding unconcernedly around the water fountain. This she continued to do, and at 3:50 the rest came





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straggling out of the grass and joined her in the open, where they continued to feed.

The wound on the top of the head of the B? (see notes several weeks - 6-7) makes her new top knot double and not altogether straight on her head, but at least she appears healthy and active.

4:26 Still feeding, although they saw me pass within 35 feet, and gave low gut quits at the time.

No water taken today, as far as I know. They are feeding all around Trawl (4:28).

Xata on quail shot recently (p. 408).

Wt. Sex.

Mouth

Age.

183.1

♀

Complete

Seems to be an

ad., for there are

no bars on the primary coverts.

4:30 4:30 P.M.

Stomach contained  
Crop basal seeds.

4:31 Sometimes the plot plot of the Q.I. Quib, in some individuals at least, sounds like what what, or what, what, sometimes like what what, or wit, wit.

4:50 Still feeding; I leave for a while.

5:13 - The Q.I. quail have gone to

Righted.  
of specimen  
shot Nov 27  
p. 408



bed, and the quail down in the  
Barley field, which tried his ~~thorax~~  
to shoot, are also going to bed,  
being up in ~~the~~ a Calif. tunnel  
in the same gulch where they spent  
the day.

See *Cipholosoma* p. 12 for an  
account of a jay actually announcing  
the presence of a hawk - to sparrows  
if not to quail.

Nov 30, 1932. <sup>p.m.</sup> up R.R. Went hunting from  
4:40 - 8 p.m. for quail today this  
being the last day of the month with  
4 quail still to get. Thanks to a change  
in the weather the birds were out.  
It was cold, and very wet from  
yesterday's rain, but at least the  
sun was not hidden behind clouds,  
and there was no wind. I went after  
the cover at the junction of <sup>the</sup> Los Hornos  
and main road. The birds were  
right at the junction. One I got  
as it flushed into a tree; the rest  
moved off up the road and started  
going to roost as it was about 5:10.  
They chose two dense, contiguous, small  
~~Calif. tunnel~~ <sup>Living Oak</sup> trees growing in a thicket  
of Spanish Broom, wild blackberry and



passerock. By standing below the  
bank on which the trees grew, I got  
them silhouetted against the rapidly  
darkening sky, and knocked over  
two more. The birds could not see  
me on account of the darkness, and  
so while the gun's report made  
them flutter about in the roosting  
trees, the covey did not actually  
leave. Whenever I stepped about on  
the gravel road, no matter how  
softly, the birds would momentarily  
take alarm, as shown by their pit-  
pits. I left the shot birds beneath  
the tree, and did not venture to  
approach it until dark had descended  
and all was quiet. Then I crept  
through the brush to the tree, step  
by careful step, and at last was  
beneath it. Several golden-crowns  
which were roosting with the quail,  
gave their alarm and fluttered about  
at my stirring, but the quail gave out  
no sound. By and by I ventured to  
flash my light about overhead. One  
quail very near me went off with  
a thunderous whirr, where upon I





shut off the light. The nest never budged. Presently I flashed it on again, and after much searching (it is difficult to make anything out under these conditions) discovered a quail roosting in a rather large hole, next to ~~the~~<sup>a</sup> main branch of the small oak above me.



I shot, and at the sound the whole tree top seemed to depart in a thundering whirl. Actually, most of the birds had moved only into the adjacent Calif laurel, although some went further. That was the only quail I saw with the flashlight. I spent much time looking for others, but the brush was thick around the other tree, and such was the noise I made that the birds always left before I could glimpse them. Had I been willing to stay all night and let them quiet down after each move, I might have got one or two more. As it was, the birds kept blundering



off into the night, alighting in various adjacent trees in what must have been a blind fashion. None of them went more than forty feet and most of them went less than twenty. Most assuredly they do not see well at night. A few pit pit for a moment after alighting, but for the most part they were silent. The thick cover in which they roost undoubtedly results in protection from horned owls. Probably screech owls, which can penetrate such places, do not feed upon them.

I forgot to mention that while I stood watching the above-mentioned covey going to roost, a bunch of about 20 quail came flying over the road from the pasture to the barley field. The quail which I was watching were pit pit in their usual manner when going to roost, and although the other covey was passing at a point about 100 yds away, nevertheless several of the birds left that covey and, turning at right angles



to their previous course, flew into the trees where my "cover" was. One of the newcomers flew down the road-way toward me and passed my head at a distance of only about 7 feet. I was motionless at the time, and the darkness prevented the bird from making out what I really was, I think, for although obviously a trifle alarmed, it plunged itself into a near by Calif. Laurel <sup>50 ft. Oregon pine</sup> and did not leave.

Well, I got my five birds at last! Thanks to 6 days of effort, of which the first five were about as discouraging and uncomfortable as they could have been.

December 1 -

December 1, 1932. Alp. B. R. Some notes on the Q. D. birds:

9:18 A.M. The quail have come out within the last 5 minutes to feed in the open space. So regular is their hour of appearance that I predicted their appearance at this time a half hour earlier. The sun is shining on the cleared place, but I think this circumstance does not entirely condition their appearance, because last summer





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they used to appear at this same  
spots, but the sun had been  
shining upon the cleared place  
for a much longer time previously  
than now in December.

9:52 Still feeding. Everything is sopping  
wet from the storm, even yet, but  
the birds are hardly a bit wet, except  
their tails, which are slightly bedraggled.  
Now they are standing in a close  
little group, some actually touching  
each other, mostly preening and  
shaking out their feathers, in the  
full light of the sun. Their manner  
is lively and denotes heightened  
activity following the long cold  
wet period which has just passed.  
One male must have been rubbing,  
or tweaking, his oil gland (wonder  
what the stimulus is, a mild itching?)  
I could not actually see it, but he kept  
working his bill about right where  
it should have been.

10:08 Still feeding. Suddenly a jay  
called 'cha! cha!' in the same tones  
as the other day (see under *Aphelocoma*  
p. 13), from about 100 ft. away.



Instantly all the quail darted into the tall grass

10:09 Now they are back again; evidently no danger was actually seen. It must be emphasized that other notes of the jays, as chree! chree! chree! (or chryee!, chryee!, chryee!) do not cause the quail to dart into cover like this.

10:32. The Golden crowned sparrow that has got into the Q. I. and can't get out, is taking a bath in the fountain, in spite of all the wet weather we have been having! The quail, on the other hand, have not gone to the water at all, although they have been feeding all around it for more than an hour.

10:47. Still feeding, but now in the tall grass.

Data as to birds taken yesterday:

Sex	Age	Hour	Weight	Plumage
♂	ad.	5:20 P.M.	197.8	Molt complete
♂	im	"	187.4	M. not quite complete; a few pin feathers on abdomen and legs.
♀	im	6:30 P.M.	<del>192.2</del> guts all shot away.	Molt practically complete
♂	im	ad. 5:20 P.M.	198.8	Molt complete

In the determination of age



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above, I have gone upon the assumption that Barred up major primary coverts indicate a bird of the year (later - A.K.)

Dec 3, 1932. 9:13 A.M. I can hear the birds just now for the first time - feeding evidently. Presently, I have no doubt, they will appear on the open space to feed.

9:26 - They <sup>have</sup> ~~did~~ not come into view, yet.

10:07 Now they are out feeding.

10:17 Moved back into long grass again.

11:09 Out again, feeding in the clowes.

11:10 Something must have scared them for they rose altogether, with a series of wings and much pit plitting, and flew to the n.e. cor.

11:12. Heard some low caca cacas, and cas.

11:30 Seen for a moment in the tall grass near the n.e. corner.

12:50 Out feeding in the clowes, but rose in a bunch and flew away to the E. side when I inadvertently scared



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them.

- 1:24 - Just coming out again to feed in the open.
- 1:26 - Feeding right by the water; some ate of the green grass there.
- 1:27 One ♀ fed within 3-4" of the water but it, too, did not drink.
- 1:52 Still feeding, but in the tall grass near the clover patch.
- 2:17 Still feeding in same general location.
- 2:25 - Feeding around the fountain again. several within a foot of it, 3 within 2 inches of it. None drink!
- 2:31 The golden crowns is bathing; I did not see him drink, though.
- 2:34 - Back in the clover; none has taken a drink.
- 2:52 The whole bunch now, one after another, back from the clover to the cleared space. Several fed close to the fountain, but none drank.
- 2:55 Now they are in the tall grass, out of sight, at the n. side of the S.F.P.
- 3:07 RB on sentry duty on the saw-house. I have not observed any grail doing sentry duty since the last time I recorded it, which is some





weeks ago.

2:12 (obs). RR has gone to join the others; all are out of sight in the tall grass.

3:51 - Sun has disappeared from the Q. D. a half hour ago. Quail are feeding in tall grass along e. side of Q. D.

3:58 - Now they are entering the lower patch once more.

4:39 - getting towards dusk. They are still in the lower patch.

December 15, 1932. We have just had a week of the coldest weather since the Weather Bureau was organized (ab. 40 years ago). Many pipes have burst in the vicinity of the Q. D., and on the top of the hill, 300-400 ft higher, the thermometers read  $5^{\circ}\text{F}$  one morning and was probably  $0^{\circ}\text{F}$  that night (see under weather notes). Nevertheless, in spite of this, the quail do not seem to have suffered any losses. The Q. D. quail are still 10 strong, and certainly the coveys are in their usual places. One reason that there have been no losses, probably, is that the snow fall was



light, in spite of the cold, so that seeds and plants remained quite well exposed.

Elmer took some notes on the Q. D. quail, which have been recopied by me as follows:

11 A.M. Snow still covers a large part of the Q. D. ground, but there are many bare areas showing, even so. The birds are eating in the clover patch [they came out at their usual time, 9:20 A.M., as observed by me E. L. S. & I.]

11:10 Still eating, part seeds, part green vegetation.

11:45 Still eating, over by saw horse now. [They have been jumping at weeds above their heads somewhat more frequently than usual. This is probably because the snow has covered up the seeds that are lying on the ground.]

12 M. In clover patch again

12:45 Still in that vicinity; much jumping for seeds; part of the time the birds jumped for seeds of *Pennisetum* *echinodes*. Several birds also scratched



at the edge of snow, where it was  
not deep; none noticed scratching  
in deep snow

1:20 P.M. Still eating

1:30 " "

2:30 Still feeding

3:10 Still feeding; the birds have been  
out more than on any other  
day at any season, in fact they  
have been out all day long.

3:30 Still out

4:00 Still there. One ran across the ice in the  
drinking fountain without stopping  
or showing any desire for water.

4:10 Still out; several commenced to eat  
young sprouting green stuff.

4:15 Still out.

4:40 " "

4:50 Still out; feeding mostly on green  
stuff.

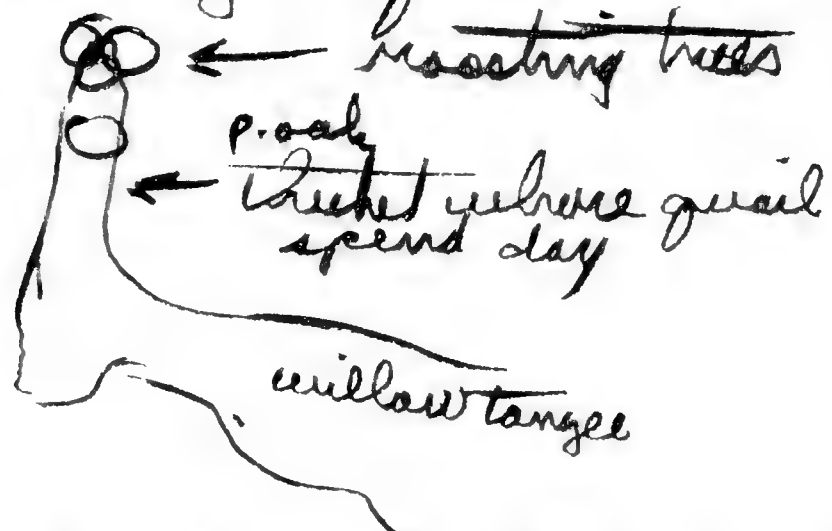
5:05 Not seen anymore (doubtless went  
to roost between 5:10 and 5:15)

Went hunting for quail - with the usual  
rotten luck. It was the covey at  
the "Pasky Place". They were in the  
same gulch where they were the  
last time. On this occasion I





knew enough to work up hill from  
the ~~best~~ tangle of willows. In this



way I did get one shot (and missed!), but immediately they flew past me and on down into the willow thicket where they scattered out and were impossible to locate. Buster McEllan says that when it was snowing, these quail would hardly move out of cover way at all. Even today, with much snow on the ground, they were "tamer" than the other time that I hunted them.

At about 5:10 I came back to get another shot at them. A cooper's hawk was harassing them and a group of golden crowned sparrows. The quail and sparrows kept mostly down on the ground in thick tangles of poison oak which



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was growing in scattered clumps on the open hillside just up slope from the willow tangle. The tangles seemed not to be extensive enough to make adequate refuges, however (they were mostly 5 ft wide by 5-15 feet long) for every now and then the hawk would make a dive at the edge of one of one of these tangles (he never really penetrated into one) and at this the sparrow and quail would usually dart out the other side and into another tangle. Probably if they had stayed where they were and hugged the ground beneath the poison oak tangles, they would have been safe, but this they did not (have sense enough to) do. The hawk may have finally got a golden-crowned sp. (I could not see well in the gathering dusk), for I heard one cry out loudly just as it dived into some brush, and after that I saw the hawk no more. At least it did not get any quail.



Neither did I, although I was within 15 feet of some, for it was now so dark that I could not see into the brush.

At about 5:12, when I had walked farther up the hill slope, I suddenly came upon 3-4 quail feeding on the ground a hundred feet from cover; they were on bare ground not far from a snow patch. For a half hour at least, 3 horned owls had been calling from the neighboring wood, and these quail would seem to have been easy prey. I have never seen horned owls flying about near quail ~~that were~~, however; the owls don't seem to get active, as a rule, until after the quail have gone to roost. Doubtless the owls would have about as much difficulty catching quail as do red tails, too.

All the quail in that section went to roost about 5:17. I got right under one tree where a large bunch was roosting, but had no light. They beat it when I made



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too much rustling in the brush.  
Dec. 16, 1932

8:58 A.M. The Q.D. quail are out feeding. The snow has largely gone from inside the Q.D., and it is much warmer. For this reason the birds are doing very little foraging for seeds, since they can now get what are on the ground, once more.

9:59 Still feeding. The B ♀ is standing about all hunched up a good part of the time, as though sick. Even when she walks about she does so sluggishly, with feathers ~~ruffled~~ fluffed out and head pulled in. Twice I have seen her stand thus, with her head tucked in under her scapulars (left side at least once), and of these times for a period of about 5 minutes. This latter time the rest of the quails wandered away and left her standing in the open all alone, but she was oblivious to this fact until later when she took her head out - at which she





turned and ran, still sluggishly, to join the others. The other time that she had her head poked in her scapulars, something scared the rest of the bunch so that they flew away. The noise of their flying caused the B♀ to take her head out from under her scapulars and look about, but she did not follow after them, and merely looked around. A sick bird like this does stand about in the open, it will be observed, and does offer an easy mark for predatory animals, certain people notwithstanding. I doubt, on the other hand, would probably not pick off such a sick bird because it would not fly.

12:19 The Q. ♀ birds have been out feeding the whole time since 9:59. The B♀ still looks sick, but she feeds frequently. The birds hardly jump at all today. However, one that did so several times was observed to be able to jump about 12", thus:





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See "Notes on the Presence of Quail Flocks" section, p. 5. for account of the first appearance of green sparrows above ground.

It is suggested that perhaps the reason that the quail have been sitting so constantly both yesterday and today is that during the preceding week when everything was buried in snow, they got less to eat and used up their stored up fat, and that now they are making up this loss.

Dec. 20, 1932. Cloudy and warm, but not cold so much; has not rained

for about 24 hours, but rain threatens for tonight. I went hunting at the Pasby Place, for the same coveys in the pasture that I have been after before. I walked over the whole region, using my quail caller continually, but I never got an answer, and I never saw a bird. At roosting time I stationed myself at a vantage point from which I could hear any sounds which might come from any part of the



birds ~~territory~~, but I heard no  
shots at all. It was as if the  
coveys no longer existed at that  
place. I don't know what to  
make of it. The weather (and  
weather notes) hasn't been severe  
enough to make the birds move  
during the last few days.

Dec 22, 1932 Went hunting for quail by the  
swimming pool. The birds were  
not as wild as those elsewhere, which  
meant that when I approached them  
in the brush they did not scatter  
and go a long way off. They merely  
retreated into the very dense thicket  
of baccharis and Spanish broom,  
where I could not possibly see them.  
After I had sat still for about half an  
hour, they came out and fed again,  
at the edge of the brush, in the thick  
stand of weeds which grows there.  
They went to roost before I got a shot,  
some flying up into the trees near  
where they were, but more than half  
going to a small (15 ft) dense live  
oak about 70 feet away. Those that  
went to roost close by, did so in





a scattered group of (artificially planted) ~~Louisa~~ <sup>Louisa</sup> ~~fir~~ <sup>(Abies grandis)</sup> They roosted only in those trees which had a dense tangle of branches emanating from the main trunk between 6 and 12 feet up. Such dense firs were the exception rather than the rule, since this sort of tangle seems to be peculiar to not too-symmetrical growth, and most of the trees were symmetrical and openly branched. These tangles were used by other birds too, as the white droppings directly beneath them - the accumulation of many nights - showed when I approached with the flashlight. <sup>Also saw a few other birds, 5 or 6 yards from the firs.</sup> The birds were located one or two, occasionally three or four in each tree that was suitable. In all cases they were in spots well sheltered from the elements and difficult to see. I only saw a very few of all those that flushed. In every case, as also in the live oak tree mentioned above, the birds were roosting in main crotches, next to the main (in the case of the oak, one of the several main) trunk, thus :



It would



be difficult for any enemy, especially a horned owl, to get them in such a situation.

Using my flashlight, I got three, as follows:

Age	Sex	Wt.	Remarks
imm	♀	— too much shot away	noct complete
imm	♀	189.4 +	(some shot away) "
imm	♀	184.5	"

shot ab. 7:30 p.m.

I ought to mention that when the birds went to roost they did so very quietly, with hardly any flat sitting. This is characteristic of the behavior of the birds during <sup>cloudy</sup> and stormy weather.

I ought also to note that I have observed no quail doing sentinel duty since the last time I recorded it on these notes, whenever that was; about 2 months ago, I guess.

Dec. 23, 1932.

Went hunting on the Packer Place, at the usual spot, and as before, I was quite unable to locate the coveys which used to be there. They must have moved, without a doubt.

Dec. 25, 1932. The Q. D. quail began to



set active about 9 A.M., as usual. The B ♀, which was observed to be acting sick (see ante) on several occasions previously, is dead; her body I found right below the window.

Remarks: Wt only 108.6; incredibly emaciated. The muscles of the sternum were almost non-existent. The wound on her head (see ante) has entirely healed, with no mark on the skin, although the feathers are quaky. (It will be remembered that the other eye seemed abnormal.)

Also, one of the young birds is also missing. Judging from the actions of the birds there is a marked shortage of grain food, although quite a large quantity of sprouting green stuff is still present. The birds no longer feed for long intervals, in one place as they used to. Instead they keep running about restlessly from place to place their heads held low, searching the ground but only infrequently actually picking anything up. They work longer in the clover, just as formerly, but even here they do markedly more scratching and less picking up of food stuffs than formerly. When I examined the clover I could find no seeds - although 6 weeks ago they were easy to find - and this

Oreg only  
ab. 1/6 full;  
contained  
green leaf  
tips, clover  
seeds, arena  
fatia seeds,  
Panicum seeds.  
Small  
intestinal  
and upper  
part of  
large  
intestine  
dark  
greenish,  
enlarged,  
and un-  
healthy  
looking.  
Stomach  
nearly  
full  
Contents  
about as  
in crop);  
normal.  
The im-  
mediate  
cause of  
hitchhike  
seems  
to have  
been the  
intestinal  
condition.  
Could it  
have been  
a worm?





applies to the adjacent weed-covered areas as well. When the birds come upon a patch of tender sprouting grass they pause upon it eagerly, but they do not eat much of it before they pass on to other places — as though it was not only green stuff that they needed, but grain also. When the golden crowned sparrow which is still inside the Q.D. flies to the top of a sun flower head, and dislodges some of the seeds as it picks at the head, the nearby quail rush to the spot where the seeds have fallen. I have seen this happen 7 or 8 times within fifteen minutes. However, when they do get there they do not eat the seeds; at the most they pick one up once or twice and then drop it again. Sun flower seeds are too big to be eaten even when the birds are hungry, it seems.

Reject sun-  
fl. seeds.

Feed exp.  
sparrows  
broom.

I put out about  $\frac{3}{4}$  of a cup full of sparrow broom seeds, scattering some so as to "tell" the birds to the central area where they were scattered thickly on some bare earth. The birds soon found the seeds





but they very evidently did not take to them very strongly. Occasionally a bird would pick one up, but again and again I saw (with X 125 at 15 feet) a bird pick up something bit of vegetation from among the thickly scattered seeds and ignore the latter entirely. Where the seeds were scattered thickest the birds would again and again walk along with heads held low looking for food, but take none although they were reaching on dozens of them every few steps.

Grain feed-  
ing exp.

Because I thought the very thickness with which I scattered the seeds might have deterred them, unaccustomed as they are to such dense masses covering the ground, I next scattered scratch feed, which is known to be a favorite food with them, in the same place as the Spanish Grain, only thicker still. The birds soon found this, and fed upon it without hesitation. This also indicates that they did not refuse the Spanish merely because it was a new, untried, food, for the millet, maize, and



hairs common present on the serotins.  
feed almost the same as families  
the seeds of the broom, which  
grows commonly in this section.  
In past feeding experiments, too,  
have noticed that some lack of fam-  
ilarity did not prevent the birds  
from eating many kinds of seeds.

No water has been taken by the  
Q.2 birds, to my knowledge, since  
the first rain, even though, as today,  
the birds run right past, or over,  
the fountain.

Today was rather warm with  
late morning, as well as sun, and  
accordingly, for the first time  
in several weeks, I heard several  
loud quack quacks from coveys  
in the vicinity.

3:17 P.M. The birds have been feeding  
pretty constantly all day. They do not  
feed more than two or three minutes  
even where the serotins feed is  
scattered thickly, but wander away to  
other sections, and then return in  
15 minutes, or a half hour, or longer.  
Perhaps this indicates that they were



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not quite so hard up as I had thought. But if this is so, what has happened to the young bird that is missing?

Two of the birds, a Band 7, while around and through the water at the "fountain" took two very small and brief sips each. The rest took none at all.

One of the ♂ has a lot of white-wash on his lower back and the dorsal side of his tail. He evidently roosted beneath one of the other birds recently.

Several birds in succession (3, I think) picked up and then rejected again a certain piece of cracked corn. This piece was something less than half a kernel [ ] (about  $\times 1\frac{1}{2}$ ), yet it was too large for the birds. Other pieces of corn which were only half that size were eaten readily.

Dec 26, 1932. About 8:50 the Q.D. birds came out to feed as usual.

Once again I saw them ~~give~~ run to cover when a jay about 100 feet away, and out of sight of them,





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gave its alarm note.

as yesterday, I saw the quail feeding right at the edge of the water fountain, but they did not take a drink.

Went hunting all day. Shot one quail by junction of Los Bravos and main road. In the afternoon shot four birds on the Pasby Place at one shot. They were within 150 feet of the place where I got the only other Pasby bird that I have got - several months ago. They were in a small poison oak ~~thicket~~ at the edge of a thickly wooded canyon, as described under the first bird. I am beginning to think that this bunch and the bunch out in the pasture, which I remarked must have moved (migrated) are the same. I have never seen quail at both places <sup>at the same time</sup>, and also, when I have missed them consistently at one of the places, I have sooner or later found them at the other place. The distance between the two hang-outs is only about .50



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yards. Buster says that yesterday and today (the days the bunch in the pasture have been absent) this bunch fed with the chickens around the dooryard.

Carl Bolanger says that he saw the money which used to be around the gunnery house down by the gate, 100 feet from the house, yesterday.

Spanish Broom.  
Feeding Exp.

The Q. S. guard house now (8 P.M.) cleaned up every bit of the scratch feed, and either they or the sparrows, <sup>or meadow larks</sup> but I think it was the <sup>sparrows or meadow larks</sup> have chewed at the sun flower seeds until the husks have split away, and have eaten the kernel, the husks being discarded. To answer, the Spanish broom seeds still lie uneaten, the scratch feed having been carefully picked out from it.

Data on the Quail Shot Dec 26.

Sex	Wt.	Age	Time of Day	Remarks
♂	170.6	imm	4:45 P.M.	Partial Stage molt. Completed
♀	177.2	imm	"	" "
♀	186.9	imm	"	" "
♂	171.7	imm	"	" "
♀	206.2	ad	3 P.M.	Los Angeles Rd. junction. molt complete except for a few feathers on belly.



Gunnell confirms my guess regarding the marbled upper primary coverts, first set, being a sign of a bird of the year. It had been a slip of the tongue when he had said marbled alulae on an earlier occasion. He says he thinks Swarth published on this, in the *Birds*; see Gunnell Bibliography of Calif. Ornith. for this. He says further, that no one has worked out the molt sequence of the *Lophortyx californicus* group.  
Dec 29, 1932. Today was warmer than it has been for some days previously, and accordingly, the uca uca call was heard several times. I have noticed many times before that the birds begin to call like this on warm, bright days after they have been silent during several days (of cold, cloudy weather) previously.

Paul, the new odd job man, <sup>at Rolfs</sup> tells me that yesterday a large flock of quail was present around the chicken yards and adjacent dwelling house. This was confirmed later by another man. This section (mostly dark,





wooded canyon) is one where I have not seen the birds before. Perhaps their presence there is an indication that the flock (probably the orchard flock) has consumed all the seed in its usual range. Paul said there were "several hundred" quail in the flock, showing the same proneness to exaggerate their numbers that Buster McLellan did (see 1st month of *Lophortyx* notes), and which many others show also. It is doubtful if many of the persons who claim to have seen a flock of 100 <sup>or more</sup> quail really saw more than fifty.

The Q.D. quail for some reason do not eat much of the grain (grain) which I put out for them in large quantities. They pick up a few grains and then move off. In view of the fact that they are probably suffering from the depletion of the national food supply inside the Q.D., I find this hard to account for. It surely isn't that they are in poor condition because they lack





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grit material for digestion, for there is a trace of it present, also shell and charcoal.

Dec 31, 1932 One of the birds got tangled in the bird net which I had hung around the grain (without making it into a trap as yet). Data as follows:

No.	Color	Age	Sex	Wt.	Time	Remarks
7409307	B+Y	im	♀	142.2	11 A.M.	Grip only about $\frac{1}{3}$ full. Bird is thin; not in as good condition as birds outside. Again today the birds hardly went near the grain. At 8:45 P.M. I decided to catch the Q. I. birds with a flashlight. All 8 were roosting in one section - the coffee berry and baccharis thicket in the e. middle section of the Q. I. On one branch were 4 birds side by side, closely appressed, 3 headed one direction, the 4th pointing the other way; 3 others were close by, in twos, and the rest further apart. They were up as high as they could get (on a point of the wire top), 10 feet up, in the very densest part of the bushes, so that they were well sheltered.



I chimed about her nests then  
jarring the branches upon which  
they sat, and even touching them,  
but they fluttered away reluctantly,  
moving only a few feet usually,  
and only when they felt my hand  
actually closing upon them. In this  
they were much tamer than any  
mourning quail I have ever seen  
before. When finally forced to  
fly they blundered about, after  
landing upon the grass, where  
they would crouch until one  
approached closely. It was a  
rather bright moonlight night,  
and either they saw us looming  
up as we bent over them, or  
else they were frightened by the  
noise we made - but I think  
the former mostly, as they would  
dodge when we reached out even  
though our feet were motionless -  
for they would dodge and then run  
off, slowly for them, through  
the grass and hide in tangles  
of vegetation. We missed more  
than half of those that were on the



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ground for this reason.

In all were caught four, as follows:

No.	Color	Age	Sex	Wt.	Grop.	Remarks
A 409292	Y	imm	♂	163.5	Only moderately full.	Not very fat
A 409307	B+Y	imm	♀	142.2	not as at 11 a.m.	" about same
439321	R	ad	♀	152.5	Only mod. full	Plum
A 409308	W	imm	♂	130.9	Fairly full Fam 8:45 P.M.	Markedly thin

2nd  
time  
today

It will be seen from the above that the birds are way below average weight for this time of year. The food shortage is indeed serious for them.

I discovered the missing 9th bird, dead beneath the roost. Bird A 409299 W ♀ imm. very thin and light.

The weakest birds are probably the first to succumb when there is a food shortage; Nat. Selection can do its work under such circumstances, then.

Grop entirely empty. Stomach full of grit, but with no seeds. Bird emaciated

Jan 1, 1933. The Q.D. birds did not once come out into the open where the grain was abundantly scattered today, even though the day was warm and bright. Only four of the birds





were seen at any time (this was between 12:50 P.M. and 2:05 P.M.), nor did they come out at 9 A.M. to feed as they usually do.

Jan 2, 1932. No <sup>Q.D.</sup> quail came out into the open space to feed today either - at least up to 11:30 A.M. One two quail were seen just for an instant in the tall grass.

Jan 4. The quail have cleaned up all the grain during my absence except for a little bit of spoiled grain. I scattered more.

Jan 5. Saw all eight of the birds, for a short time only, in the tall grass at the e. side of the Q.D. They fed on what grain I had scattered at that place but they did not come out into the open where the main supply lies.

All day, as ever, since I caught them at night, the birds have refused to come out into the open. I can't understand such timidity.

They went to roost at 5:10 P.M.  
Jan 8, 1932. Deputy Game Warden



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Mr Rhenson Low told me two anecdotes witnessed by him which corroborate what Buster McTellam told me about the pugnacity of ♂ quail during the breeding season:

(1) He saw a (Calif.) jay trying to get at (and kill) some young quail which were in thick brush, but the jay was never able to get near to the young because whenever he approached them the ad. ♂ would rush at him and drive him away.

(2) Once he saw a ♂ quail rushing at something out in an open field and when he arrived there he saw that the object of attack was a snake with cross stripes (king snake?). The quail <sup>per. grandis.</sup> had driven him into a gopher hole. Low could not find any young in the vicinity (but they may have been hiding, out of sight).

The Q. I. quail are still about as secretive as ever. The grain which



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Is scattered still lies for the most part untouched except in those places which are right at the edge of coveys. A meadow mouse (*Microtus*) has discovered the treasure, and makes frequent trips to snatch a bit of grain and carry it back into the grass.

At 5:18 P.M. The quail did actually come out - or several of them did, anyway - and feed in the open, eating the grain. The meadow mouse would dart by within a few inches of them, sometimes, yet he caused them no alarm. Their behavior in this respect contrasts with that of the <sup>Q.D.</sup> ad. Qs during the previous breeding season (see ante).

5:25 P.M. Q.D. quail left off feeding and went to roost.

Today many antbirds quail were cu ca going, since it was warm in the sun (ab. 80 at noon in the sun). I have noted that thrashers (and doubtless some others birds) sing just as they do in the





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springtime, whenever there is an unusually bright warm day in winter. I heard thrashers today doing this.

Jan 14, 1933. Q.D. quail have been as secretive as ever, since the time when they were caught at night (see ante).

5:34 P.M. Q.D. quail went to roost.

Jan 19. Q.D. quail still secretive.

Went hunting on the Pashy Place today. There was snow on the ground and more falling, which made the birds reluctant to take wing. Consequently I got one from the tree and brush filled gulch where they usually hang out. When flushed some of the birds flew into the woods where I once got a bird from the (hypothetically distinct) covey which is sometimes to be found by the front gate. Later a large bunch went to roost in a clump of bay trees back of the house about 100 yds from the gulch mentioned above. From the above data it will





be seen that the pasture covey and the front gate covey, if not identical have overlapping ranges, but probably the former.

Jan. 20. Went hunting again, in same place as above. The "front gate covey" was over at the edge of the woods bounding the pasture; the "pasture covey" was a small detachment in the pasture gulch (referred to on preceding page), about 100 feet from the "front gate covey". The two detachments may at times be separate but they undoubtedly join, also, in fact some of the "front gate" birds went over to the pasture covey when I shot at the former. Got two birds from the "front gate" outfit, one being from a tree after the covey had taken refuge in the tree tops and "froze". This is the only time I have ever been able to make out (let alone shot) a quail in a tree after the flock had "froze". This particular bird suddenly began to pit, pit, and



crane his neck at me as I stepped underneath the tree, but he did not fly, as they usually do when thus alarmed. Finally I caught him, perched upon a bare branch of a madrone tree, about 30 ft up. He was an im. ♂.

The coveys were at the governor's house. Has been seen by Carl Bolander and Burtis M. Lellan several times recently, including today. Today, Carl said they were very tame, allowing him to approach to within ab. 45 feet; even then they did not leave, since he did not approach closer. They were standing in the grass behind one of the sheds there. Carl said there were only about 9-10 birds in the covey. This afternoon I went gunning for them and quickly located them, about 125 yds from where Carl had seen them. Got one; estimated the flock at about 8-9 birds. Carl says possibly one reason for the decrease in numbers of this covey is that



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only a few hundred yards away the refuge ends, and there was much hunting of quail during the recent open season, on the adjacent upland land.

Even Carl exaggerates the numbers of quail, claiming there were about 100 in the flock down at the Los Barrios Rd junction with main road. As a matter of fact ~~there are~~ <sup>were probably</sup> ~~not~~ <sup>at one place</sup> more than 40 there <sup>at the very outside</sup>.

Remarks on the quail shot Jan. 19 and 20.

Jan 19

Sex	Wt.	Hour	Locality	Age	Remarks
♂	216.5	ab. 3 P.M.	Pashy Pl. Pasture flock.	ad.	Wing removed, for photography.

Mites around anus. Crop much distended;  
weighed 21.8!

Jan 20.

♀	189.8	ab. 2 P.M.	Pashy Pl. "gate fl." in.		Crop not very full mites as above.
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♂	183.6	ab. 2 P.M.	Pashy Pl. "gate fl." in.		Crop not very full. mites as above. Many feathers missing, including tail. Bird should be examined closely some time (I shot it at about 25 ft away).
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♂	184.2	ab. 4:30 P.M.	goumex place in		Crop not very full. Only a very few mites.
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January 25, 1933 Went through part of the Pashy quail territory to put out more scratch feed bait, between 4:30 and 5 P.M. The last lot of bait - placed where I once got 4 quail at one shot - has not yet been touched, even by sparrows! Really don't see why. The quail (or some of them - about 15 perhaps) were in the same place where they were, on the 20<sup>th</sup>. And when I scared them, about 8 went up into the trees of the wooded canyon ('gate quad' territory) and about 7 flew across the 100 feet of open pasture to the brushy field quail (pasture quail territory). I went near to the group which had flown up into the trees. One bird, frightened at my approach, flew out of the oaks and alighted about <sup>50</sup>55 feet up on a bare branch of a venerable, 100 ft. Douglas fir, where the branch left the main trunk. It stayed there only about 30 seconds however, leaving as I approached the fir. When I first came upon this group of quail the birds were



doing what I have several times  
seen quail do at roosting time,  
namely, <sup>wide,</sup> traverse, open, un-  
protected places on foot in  
their journey toward some distant  
<sup>feeding or</sup> roosting spot. These particular  
quail were about 50 feet from  
cover, midway between gulch  
and wooded canyon, when they  
first caught sight of me. I was  
actually able to get a shot at them  
(although just too far away to make  
a kill) by approaching them concealed  
only by a tiny hump of ground.  
Some of the birds, at the time I  
fired at them, were standing  
still, with feathers fluffed out  
and heads hunched down (it  
was sleeting rather hard, though  
very little snow was as yet  
under foot). A cooper's hawk  
ought to have been able to pick  
one up quite easily. I have seen  
these hawks hunting quail at just  
this time of day (early dusk) too.  
Feb. 2. glimpsed several quail as they  
ran through the brush past me



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50 feet from the Q.D. "garage", where the environment is thick brush and woodland.

The Paddy quail were right around the house as usual. Some of the grain was eaten this time (at last), but not necessarily by the quail (possibly juncos).

Feb. 3, 1933.

Trap. Band Color. Wt. Sex Age Hour. Remarks.

1 A409317 n+b, l. 204.1 ♂ imi 5:30 P.M. no notes

1 A409319 b+w, l. 187.1 ♂ ad " no notes

Return 1 F409285 b+w, l. 208.7 ♀ ad 5:30 P.M. a few notes at vent

1 A409320 n+b, l. 205.4 ♀ ad " -?

1 Q409363 n+y, l; w, n. 222.1 ♂ ad " no notes

1 Q409304 n+y, l; b, n. 200.3 ♂ imi " " "

2 529436 n+y, l; y, n. 199.6 ♂ imi 6:30 P.M. "

2 529437 n+y, l; w, n. 197.6 ♀ ad " 1052

2 529438 n+y, l; n, n. 215.4 ♂ ad " 1052

2 529439 n+w, l; w, n. 195.7 ♂ imi " -?

2 529440 n+y, l; b, n. 180.7 ♀ imi " 1052

2 529441 n+w, l; y, n. 221.3 ♂ imi " 1052

2 529442 n+y, l; y, n. 192.1 ♀ imi 7 P.M. 1052

2 529443 n+y, l; n, n. 189.5 ♀ ad " "

2 529444 n+w, l; w, n. 168.3 ♀ imi " several


2 529445 n+w, l; y, n. 193.6 ♀ imi " 2013

2 529446 n+w, l; n, n. 207.6 ♂ ad " several



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Trap	Band	Color	Wt.	Sex	Age	Hour	Remarks
2	529447	n+b, l; w, l	205.4	♂	imm.	7:30 P.M.	Saw no miles
returns → 2	409311	b+y	217.3	♀	imm.	"	1002
2	529448	n+w, l; b, l	199.8	♀	imm.	"	a few
3	529449	n+b, l; y, n	209.3	♂	ad	10 P.M.	saw none
3	529450	n+b, l; n, n	195.7	♂	imm.	"	"
3	A438011	n+b, l; b, n	220.0	♂	ad	"	"
3	A438024	n+r, l; w, n	212.4	♂	imm.	"	"
3	A438025	n+r, l; y, n	208.5	♂	imm.	"	"
3	A438026	n+r, l; b, n	201.1	♂	imm.	"	1002
3	A438027	n+r, l; n, n	208.9	♂	imm.	"	several
3	A438028	n+w, l; n, n	199.7	♀	ad	"	a few
3	A438029	b+b, l; w, n	197.5	♀	imm.	"	2003
3	A438030	b+b, l; w, n	203.7	♂	imm.	"	1002
3	A438031	b+b, l; y, n	185.4	♀	ad	"	saw none
3	A438032	b+b, l; n, n	179.4	♀	imm.	"	7008 crest gone
3	A438033	b+b, l; y, n	185.4	♂	ad	"	7008
3	A438034	b+b, l; n, n	215.2	♂	imm.	"	2003
3	A438035	b+b, l; b, n	201.5	♀	ad	"	90010
<p>one leg (l.) with large hard cyst or tumour, possibly result of a stray shot</p> 							
3	A438036	b+b, l; b, n	197.2	♂	imm.	"	10012
3	A438037	b+y, l; w, n	174.1	♀	imm.	"	5006
4	A438038	b+y, l; w, n	199.5	♂	imm.	12 M.	saw none
4	A438039	b+y, l; y, n	212.9	♂	imm.	"	6007





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Trap Band Color 2H. Sex Age Hours Remarks  
4 A438040 b+y, l; b, 220.4 ♂ im 12 midnight 7th (from center; 3rd from outside)

primarily pure white, about 1" shorter than 6th and 8th. Left wing has normal 7th primary as to color and size

4 A438041 b+y, l; y, 156.7 ♀ im 12 midnight —

5 A438042 b+y, l; b, 199.3 ♀ ad 12:30 2 or 3 notes

5 A438043 b+y, l; r, 167.0 ♀ im " no notes seen

5 A438044 b+w, l; w, 180.0 ♀ ad " "

5 A438045 b+y, l; r, 194.5 ♂ im " "

5 A438046 b+w, l; w, 213.8 ♂ im " 10 or 2

5 A438047 b+w, l; y, 186.7 ♂ im " ab 1

5 A438048 b+w, l; y, 185.6 ♀ ad 1 A.M. 3 or 4

5 A438049 b+w, l; b, 207.0 ♂ ad " none seen

5 A438050 b+w, l; b, 197.9 ♀ ad " "

return → 5 ~~A438051~~ 439329 y, l (colored band carry off; another put on) ♂ ad " 7 or 8

4 A438051 b+w, l; r, 167.7 ♀ im 12, noon. several got caught in central compartment, some how, even though all the doors of the other four were open.

The above birds were caught between noon and dark on this, the first day of the 1 year trapping program. I had pre-baited, gradually getting the traps into position, for about 10 <sup>successive</sup> days prior to this, so that the birds had had time to become



accustomed to the traps. This accounts for the unusual success obtained. Small seven traps were in operation, but of these only 5 caught quail. However, these five must have caught nearly all the birds in their vicinity. Traps 1, 2, 3, ~~4~~ and 5 had birds in them (as many as 10 in one compartment in one case) by the middle of the after noon and then, upon being emptied of their contents, caught most or all of the remainder of their respective coveys between that time and nightfall. Many of the birds had to be liberated late at night, some as late as 1 A.M., but probably few or none got picked up by owls due to poorly chosen roost sites. The night was moonlit, and probably the birds gradually reached fairly thick cover (see my previous nocturnal experience with the Q. J. quail on a dark night). In most cases they would not stay in the thick trees where I had tossed them, but would burst out at once and fly away, after



across open spaces.

The catching of large numbers of quail simultaneously at five different stations (see Map I) shows that there is not one or two large, coherent coveys on this quail range, but (at times, at least) many small groups of 15-20 birds. Undoubtedly there is intermingling between these groups, for example, I remember one such instance of two coveys partly intermingling at roosting time, about 3 months ago (see ante), also the three returns (marked with red ink) from last <sup>year</sup> were all from sections <sup>the</sup> far from the original point of capture, particularly in the case of A 409285, and also in the case of (A??) 409311. This co-existence of numerous small coveys is demonstrated by trapping when it might never be seen by the observer as he traveled over the territory, on account of the secretive nature of the birds. For this reason trapping is to be recommended as a method of census taking over other methods, in brushy country. For example, I had not





see any quail in the locality where trap no. 4 was located during the whole ten days that I was prebaiting the area.

The co-existence of numerous small territorially distinct coveys on one <sup>small</sup> ~~territ~~ <sup>or</sup> ~~unbroken~~ piece of quail range has also been demonstrated, of late, to me, on the Pashy Place.

There is considerable variation in wt., from 156.7 in the case of an im ♀ (possibly a weak specimen) to 222.1 in the case of an ad ♂. Adults weigh more than imm; ♂s more than ♀s at this time of year.

It appears (as I have suspected in an earlier case) that the elbularid, colored bands may come off; this is shown by no. 4 39529.

As usual, many of the birds when held in the hand showed little external manifestations of fear. A few exceptional birds cried out with the characteristic shrill call of fear, about half of all the birds kicked and struggled hard, but nearly half merely held still,



staring about without showing uneasiness (such as panting), and occasionally making little 'no-no' sounds.

Feb. 6, 1933. The Partridge quail, or some of them were at last over near the grain which I have been scattering at the future trap site for about two weeks (before I got my ~~last~~ quail for stomach examinations for last month, I started to scatter this grain). Most of this time the grain has disappeared only very slowly and has been visited only sparingly even by juncos and sparrows. Today the quail were from about thirty feet beyond the grain, and nearly all of it had vanished. It remains to be seen whether their discovery will induce them to visit the spot more often. For some reason, this part of the quail range, although not separated from the rest by any barriers, is but seldom visited by them. Since I first began to visit this section I have



only seen <sup>the</sup> quail there three times. The first time I got one bird, the second time four, and this time none. To be sure, there is little food for them there, as compared with the pasture, the locality being <sup>one</sup> ~~one~~ <sup>on the edge</sup> at the edge of the woods with only a fringe of berry-bearing shrubs, and on the other side an open clearing in which grasses, but ~~few~~ <sup>little</sup> weed variety, grow. However, it seems quite as favorable to ~~me~~ <sup>them</sup>, as some of the other weed margins where the birds regularly stay.

The days are becoming noticeably longer already. The golden-crowns got bed about 6 P.M. The G.D. quail went to roost at 6 P.M. tonight, as did also (as near as I could tell) some outside quail near trap I. (See Map I). These outside quail went to roost in a "grove" of <sup>some</sup> cypresses (*Cupressus macrocarpa*). Apparently quail, and other birds too, are not particular as to whether the trees in which they roost are conifers or angiosperms, native or introduced, so long as





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they provide dense, shelters somewhere  
above <sup>alive in the community</sup> pine or six feet from the  
ground.

Feb. 8, 1933.

Shot one quail today (circumstances  
given below):

Sex Age Wt. Hours Remarks.

♂ ad 191.3 4:30 P.M. Stomach is an  
unusual shape, rounded on one  
side as usual, but flat on  
somewhat concave, on the other  
side. St. Crop with very little  
food, possibly because birds  
had been kept up in the  
trees so long by the cooper  
hawk (see below) that they had  
had no time to feed.

One bird accidentally killed at trap 3  
on Feb. 3, during trapping  
operations:

♂ im 196.8 6 P.M. (Weighed then, not now)

Went hunting at the Rocky Place for  
about 20 minutes. The cooper was at its  
usual location at the edge of the woods, but  
all the birds were already up in the trees  
when I got there. I heard a cooper hawk  
giving its heh, heh, heh, call close by





and have no doubt that that was the reason that the birds were in hiding. They kept bursting out of the trees above my head as I tipped about, trying to locate them. At last I did see one, and got him (the 3<sup>rd</sup> A1.3 above). He was perched on a good sized ( $1\frac{1}{4}$ "?) branch, not in tugging. I think quail probably always perch on large branches when in trees, perhaps because they are heavy birds. He was apparently watching me on the ground below, and like night herons, he held a rigid, watchful, horizontal position with neck craned far out, all ready to fly.

radio  
also  
up lower  
than this.



When merely roosting, on the other hand, the bird is more upright, with heads pulled in. At my shot about 5 others exploded out of the same tree; I had not seen them at all. In fact, I only made him out on account of the scale patterns of his belly (this is a distinguishing <sup>time</sup> feature of roosting birds, too, when one plays the flash & light upon them).



The quail had apparently not been visited by the quail again, although their usual hangout, there deep, is only about 100 feet away across a deep, dark, wooded gully (which they do not hesitate to traverse, however).

Feb. 9, 1933. Snapping operations

No. Color Age Sex Wt. Hours Trap Remarks

A438052 w+y, l im ♀ 190.5 2 P.M. A 2 in company of A438039; one or two miles.

A438039 was by l; 47 now R+y, l. im ♂ 207.8 2 P.M. A

A438053 n+y im ♀ 173.2 5:30 P.M. 4 Did not look for miles.

A438041 n+y im ♀ 171.6 " 4

A438054 n+y im ♂ 221.7 " 4

A438055 n+y im ♀ 189.4 " 4

A438056 n+y im ♀ 193.8 " 4

A438040 n+y im ♂ 226.5 " 4

A438057 n+y im ♀ 197.6 " 4

A438058 n+y im ♂ 213.0 " 4

A438051 n+y im ♀ 172.6 " 4

A438059 n+y im ♂ 191.8 " 4

A409311 n+y im ♀ 209.6 6:30 P.M. 1

A409304 w im ♂ 184.8 " 1 top of head badly exposed on one side.

Note - this ♂ has a slight scratch over it so that it looks like a 6 but apparently it is not. I have perhaps made this mistake with A409303 also. Possibly it is a 6; it is damned hard to tell by looking at the band.

scrapped nearly down to bone.



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No.	Color	Age	Sex	Wt	Hours	Trap	Remarks
7438060	n+y	imm	♂	✓198.9	7:50 P.M.	4	Didn't look for mates
A438061	n+y	imm	♂	✓203.6	"	4	"
A438062	n+y	imm	♀	194.7	"	4	"
<u>7438038</u>	n+y	imm	♂	✓198.8	"	4	"
A438063	n+y	imm	♂	✓222.0	"	4	"
A438064	n+y	imm	♀	194.3	"	4	"
A438065	n+y	imm	♂	✓206.8	"	4	"
A438066	n+y	imm	♀	192.6	"	4	"
A438067	n+y	imm	♂	✓197.9	"	4	"
<u>529448</u>	w	imm	♀	193.5	8:45 P.M.	1	"
<u>529447</u>	w	imm	♂	✓194.7	"	1	"
<u>529442</u>	w	imm	♀	191.5	"	1	"
7438068	w	ad	♂	206.9	"	1	"
<u>529436</u>	w	imm	♂	✓201.3	"	1	"
<u>439326</u>	b+y	ad	♂	205.7	"	B	} together
A438069	b+y	ad	♀	✓181.3	"	B	
<u>529450</u>	h	imm	♂	✓196.1	9 P.M.	2	"
<u>7438035</u>	h	ad	♀	✓201.7	"	2	"
A438070	n	ad	♂	203.1	"	2	"
<u>7438011</u>	h	ad	♂	215.4	"	2	"
<u>7438030</u>	h.	imm	♂	✓204.3	"	2	"
A438071	n	imm	♀	188.5	"	2	"
<u>7438037</u>	h	imm	♀	172.3	"	2	"
<u>529444</u>	n	imm	♀	—	"	2	"
<u>7409285</u>	<u>W</u>	ad	♀	✓197.3	9:30 P.M.	3	"
<u>529441</u>	n	imm	♂	✓223.4	"	3	"





No.	Color	Age	Sex	Wt	Hours	Tag	Remarks
A438072	b.	im	♀	181.0	9:30 P.M.	3	
<u>A409315</u>	w+y	im	♂	198.7	"	3	Check this bird as to when first banded; I think 11/5/32

The same flocking tendency as before (i.e. numerous small flocks) is to be noted. However, comparison with the previous trapping day shows that already there has been some intermingling of the flocks (as 2 and 3).

Again I had to let nearly all the birds go after dark (9 P.M.); however, it was brilliant moonlight, and they did seem to be able to fly on a definite course quite well. On the other hand, when one considers their impetuous, bullet-like course when frightened, and the blind way in which they sometimes flutter through thick foliage, it would ~~be~~ <sup>not</sup> be surprising if sometimes they injured their eyes, especially if disturbed after dark. I suspect that the <sup>(late)</sup> Q. I. B ♀ may have put out her eye in this manner (see ante).

Roosting time of the Q. I. birds was 6:00 P.M., sharp.

Caught two groups of ♂ and ♀ birds



in the trap together, this last time. This may be first indications of pairing or it may be chance.

Feb. 14, 1933. Donald D. McLean told me today that at his home in the Sierras, a ♂ valley quail that he knew was mated (he knew right where the nest was), gave the quail call regularly from a position 75 ft. or so distant from the nest. He thinks that probably all quail in ♂s are mated, but in this case he knows that such was the case.

He, too, has seen quail run, or better, run and flutter both, at dogs that were near their nests. It all happens so quickly that it is hard to see, however. The first thing one knows there will be a rush and a flurry of wings right in the dogs face and the next instant the quail will be a few feet away flopping about as though hurt. The dog, of course, takes and after the hurt quail. Once he scared a spotted owl, which was flying away from him when suddenly



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a ♂ valley quail appeared from somewhere, flew at the owl, and hit it with considerable force. The owl didn't stop to argue, just kept on going, hurriedly. The quail melted back into the brush somewhere.

Today was warm and sunny, and there was much plit plitting and cu ca coming around the swimming pool and pastures. Since the young have matured, I have seen no sentries at all. The last time I saw a sentry was months ago; it is recorded somewhere ante. (p. 437) 425  
Feb. 14. I went all over the Pashy quail range, some of it twice, but couldn't locate a single quail. I even crossed the Skyline Boulevard and looked along the edge of the impenetrable tangle there, and I scouted over the McDellans' backyard, but in vain. The birds may have been deep in the woods somewhere, or else down in the dense willow tangle at the lower end of the pasture. However, it is surprising to be





unable to find a single quail out of the various coveys, anywhere.

I was unable to locate the small covey at the Governor's house, either.

Feb. 18. The Q. J. birds are gradually getting over their astonishing wildness which followed upon my raid of a month or more ago. They still fly precipitately 2:45 P.M. when they see a human being, but at least they have now developed the habit of coming out into the open to feed, <sup>and do so within a few</sup> ~~intruder~~ <sup>minutes of the</sup> ~~the~~ <sup>intruder has vanished.</sup>

→ There are eight of them, 4 ♂s (including the B♂ and R♂) and 4 ♀s (including the R♀). They scratch and feed more or less in one place, as normally, instead of wandering about over wide areas with only a peck here and there as they did during December. I suspect from this that whereas the seeds are all gone, there are many tiny, newly sprouted seedlings upon which they are subsisting. If this is so, then the winter starving time is already over for quail. This should be checked by stomachs.





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examinations, and by weighing the Q.9. birds again, to see if they have put on flesh.

Two ♀s took a prolonged dust bath.

5:30 P.M.

5:45 Several Q.9. birds feeding around the water fountain but not drinking; the eighth has a marked tendency to sit hunched up, apart from the others, as though weak or sick. This has been noted several times today.

6:05 One ♀ taking a dust bath. The light is pretty dim.

6:06-6:07 All walked over toward trees, trailing along one after another.

6:08 Flew up, one or two at a time

The Packy Quail, which I tried all day to hunt, went to roost at ab. 5:57 P.M., when it was lighter than it was the usual quail, but time. Possibly my presence in the distance scared them. They roosted in a clump of thick, tall oaks (*Quercus chrysolepis*?) growing at the edge of the prairie where they usually hang out. The trees were so dense and



tall that I couldn't see a single quail although I spent two hours looking with my 10 cell flashlight! This was the third time today that I went hunting for them, each time fruitlessly, and about the 6th day of (fruitless) hunting this week. The flock is noticeably smaller, or at least all of it that I can locate each time, that is, about 15 birds. Also it is much wilder, the birds usually flushing at about 100 feet, and flying back into the dense trees of the adjacent woods, where they alight much scattered out, and remain perfectly silent for an hour or more thereafter. The three times were ab. 10 A.M., 2 P.M., and 5:30 P.M.

Just at roosting time, when the birds were somewhat scattered and were assembling for the night (something which they always do if not too badly frightened) there was much low mo-moing, and one bird which was 150 or more feet down the canyon from the nest kept calling *ca ca ca* again



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and again intermingled with pit pit pits all the while running over the dry leaves, until it had reached the others. (By the way, speaking of calls, I haven't heard the squill squill call since the nesting season.

All that day the birds travelled only <sup>with</sup> in about a 200 foot radius circle, in spite of being scared by me time. This sedentaryness is normal, I believe.

Feb. 19. Today went hunting for the same birds again, & at about 9:30 A.M. They had moved about 300 feet away this time, to the gulch in the middle of the pasture. Once again they showed their recently acquired wildness, and taking to the tall trees in the deep woods, and I got none. ♀

There is a lot of good territory for quail around the edges of the Pashy pasture, places where there are thickets of poison oak, snow berry, etc., but these have so far never been occupied, for some reason. Possibly they are in summer, when the individual pairs spread





out, but at the present time they seem to be entirely wasted, from the point of view of quail. I think habitat may be partly responsible for this.

Edith watched the Q. & J. birds from 10 A.M. until 10:30. They came out into the clear place twice, but were evidently nervous, for they flew back into the brush both times after just a moment in the open.

February 20, 1933. Went hunting from about 4 P.M. until dark, at the Pearly Place. The birds were by the grass, which I had put out, again, but they flushed before I could get a shot. <sup>and back to the trees</sup> So I spent away until 5:45. I came back then, and found them about 100 feet from where they were before. Some took to the trees, seeing me, but I lay down instantly, and kept perfectly still, and in about 15 minutes I could hear them calling very softly, no, no, no, and moving about. They will come to life like this, after being scared, much sooner than usual if it is



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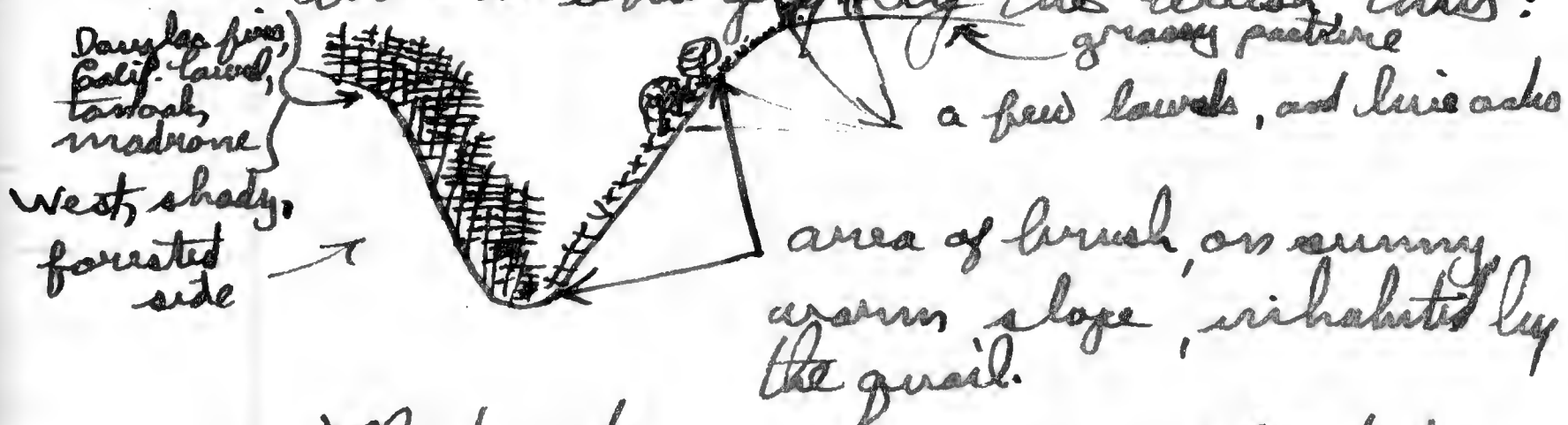
roosting time. However, I failed to locate the exact trees where they finally roosted, so had all my pains for nothing again. It can certainly be said that the swarms are more many than when I first began to hunt them; their manner of taking to the tree tops when I am still far off shows this.

Feb. 21, 1933. Alp. Cr. R. Went hunting <sup>See Appendix</sup> at the Pashy Place again today. The covey was over in the brushy gulch, in the pasture, this time. The birds were out feeding at the edge of the brush, in the new grass, but all flushed and flew into the near by trees, or alighted in the dense brush, when I was still 150 feet away. There were about a dozen of them, I think, but perhaps less; hardly more, certainly.

I next went over to the <sup>some</sup> ~~one~~ <sup>quail</sup> on the N. side of the ridge. The ones living in the brush path, there, that I used to hunt regularly, but another covey of about 30 or more which lives in dense brush just



above the bottom of a deep canyon or ravine). I shall call this the Canyon Covey to distinguish it from the other covey of quail, which I used to hunt and which lies on the brushy hill side. This latter covey I shall call the Mindego Covey. The Canyon Covey was only moderately wild, not having been shot at before, but the country was difficult to make about in, on account of the steepness of the slope combined with the impenetrability of the brush (poison oak, haccariss), so I got no birds, not daring to risk the few wing shots which presented themselves. The distribution of the birds seemed to be (at this time of year) limited sharply by the brush, thus:



This territory, so inaccessible and extensive, seemed like an ideal wintering ground for quail, being difficult for any predator to penetrate, and this, I think





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is the reason that the coveys are so large. Even coopers haunches would find it difficult to catch quail here.

I hung around all afternoon, waiting for the Canyon Coveys to go to roost. When I finally had run across them I had noted that the quail of this covey were strung out in little bunches over an area several hundred feet in extent, and this scattering was shown even at roosting time, for they went to roost in two groups, one on each side of a small draw. The trees were both live oaks, and were separated from each other by about 200 feet.

I tried to get some of the roosting quail with the 10 cell flash light, but the foliage of both of these trees were so thick that I could not find a single bird.

When flushed from where they were feeding, during the early afternoon, I observed on two occasions that the quail defecated just after they had launched into the air. As they were between me and the sun this was visible as it would not be under





ordinary circumstances. I suppose the act is a result of nervous tension or fright, having the same significance as a certain saying of ours (*Homo sapiens*), vide "John Brown's Body".

Ever since Feb. 8<sup>th</sup> it has been warm and sunny, and accordingly the quail about the swimming pool, and the Los Angeles junction, have been in evidence, as they have not been previously; there is much running about in the open, in little groups, and cawing. Although not injured by the cold and wetness of winter, quail are evidently affected by it somewhat as human beings; both prefer to stay in under shelter and are not markedly active during such times, while with the coming of warm weather activity recommences.

Feb. 22 To day I hunted again at the Mindigo, but couldn't find the Canyon Coney, and didn't try the Mindigo C., considering the latter out of the question of possibility.

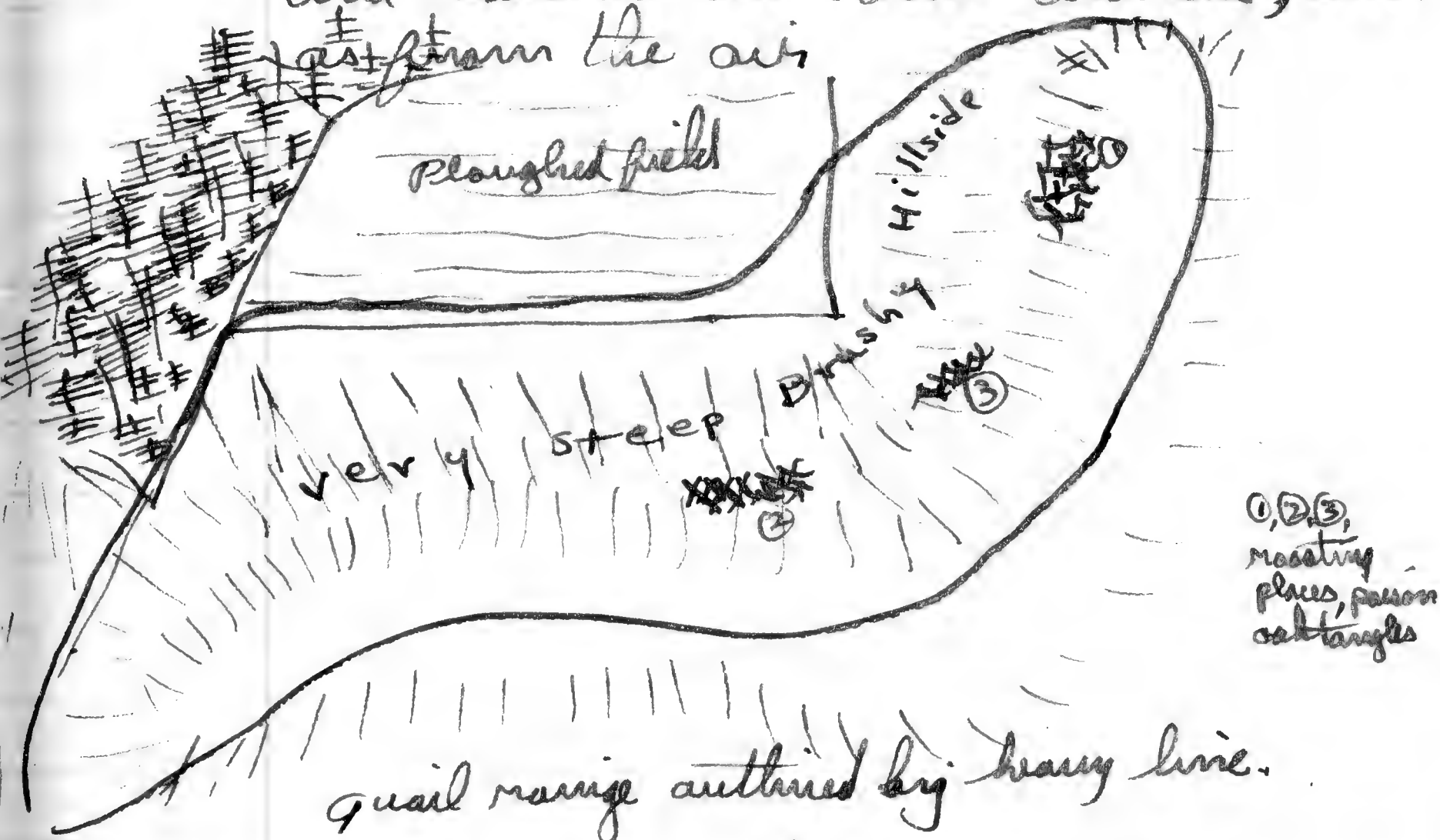
Feb. 23. Driven to desperation by the



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failure of any result after nearly two weeks spent in solid hunting, I decided to concentrate upon the Miridgo Covey no matter what the cost in effort.

I found them at the extreme <sup>south-west</sup> end of their domain this time. Its limits and characters are about like this, seen <sup>from the air</sup>



It, like the range of the Canyon Covey, is an ideal range for quail in winter being composed of dense stands of brush and poison oak, with ferns growing beneath, and wild Rubus (species?) intertangled. Groups of Buck eye trees stand out here and there, as well as an occasional Calif. Laurel.



The laurels are not much used for roosting, however, because the impenetrable jingles of poison oak serve so much better.

Feb. 24. Today I spent cutting trails through the brush up to and beneath all the Calif. laurel trees which might be used as roosts. I did the same in part around the area of "brush" in which I had seen this covey roost several months before. This "brush" turned out to be not merely baccharis, as I had earlier supposed, but a dense tangled mass of poison oak - a veritable fortress of it, many yards in extent. Cutting lanes through the stuff was hellish hard work, and at the end of the day I had it only partially provided with avenues of approach. The covey came out of the brush and fed at the edge of it just before dusk, at about 6:15 P.M. At 6:20 they flew, in several detachments, from their feeding ground to the poison oak fortress. I left and returned again about 9 P.M. thus giving the quail time to get settled.





thoroughly for the night, and to get good and brown. When they have reached this stage they flush less readily than during the period immediately after having settled themselves. The birds were exceedingly difficult to see in the dense tangle of the poison oak, especially since my newly cut lane did not extend far in to where they were. I got one bird, (m. ♂, ~~female~~), too blown to pieces to weigh, and spent an hour looking for him, so dense was the tangle at that place. The bird had been feeding, like the others of the covey, on the uncovered grains of barley cut on the recently sown barley field which is adjacent to their range (see map, p. 483).

data on  
m. ♂  
collected,  
no  
act.  
(covey  
shot  
away  
nearly  
time  
ab.  
9:30 p.m.)

Feb 25 To night the Mindes Covey went to poison oak fantress no 2 (map, p. 483), to roost, although I had purposely worked there until late so as to scare them away from it. As usual they came down to the barley field to feed just at dusk. I had not cut enough lanes into this second tangle to



reach the dense part where the birds were - they always select the very densest places - and so, although I scared the birds out, at 9:30 P.M. I got no shot at any. <sup>They started up the next day 6:31; became quiet at 6:40 P.M.</sup>

Feb. 27 Tonight the Mindes Covey went to feed on the barley at dusk, as usual. They ran away out into the open field, 100 feet or more from cover, as they ate, and they put pitted from time to time; nevertheless, they drew no attack from any enemy (my blind was out of range), even though horned owls were hooting all around. A puddle of water fills a small depression only a few feet from where they feed, but I have never seen any quail go near it; the hillside where they live is entirely without water.

This night (perhaps as a result of previous disturbance) they went to roost in parson's oak patch no 3 (p. 483 map). I had not cut any lanes through it. In desperation I fired a shot into it, but the birds did not flush, merely huffed the



ground. Ten minutes later they came to life and one could hear faint moos and fluttering as they furtively climbed up the stems of the roost at any time, but roosting time it would have taken a half hour or more for them to come to life. One bird left the nest and flew into a nearby bay tree. It was a tree which I had chopped a trail to. At 9:30 P.M. I got him - after an arduous stalk up a nearly perpendicular slope. He was sitting about in the center of the tree on a rather large branch, a precarious roosting site, since he was in full view and was not sheltered by any tuggery. Wt. 182.5 ad ♂. After shooting him I couldn't find him, as he roosted 50 feet down the slope. I chopped half the *Baccharis* off that hillside, but in vain. The next A.M., though, I located him. This long, unfruitful, wearying try for five quail this month has netted me three (+ one killed in trapping) and a near case of nervous





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prostrations

I should have mentioned on Feb. 25 that during the last few days there has been more and more *cacca* coming both inside the Q.D., and close by outside. A flock of outside quail hangs around close to the Q.D. flock almost continuously.

Since Feb. 25 this gregariousness has continued to be marked: it looks as though the courting time were close at hand.

Feb 28. A ♂, n+y.l., nothing (but a B.S. band) on n. was standing on top the Q.D. this morning, and then later an unbanded ♂ was also seen there. This does indeed look like the interest shown by amorous individuals. The Q.D. birds were directly beneath, no-mo-ing, and *cacca* coming.

Later in the morning there was much *cacca* coming and twice I heard the squill! squill! call given in response. Haven't heard this call since last year's courtship season!

I turned the water completely off





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inside the Q. J. this afternoon and filled the water dish with dirt. This marks the beginning of the water experiment.

Mar 2 Saw a ♂ B&B; y.r on top of the Q. J. this afternoon; more cica coming and squalling, also.

Spring comes earlier on the sunny, west-facing slope where the Canyon Covey and Mindogo Covey live, than it does here. Over there I saw one small wild flower blooming a week ago, and the grass is 2" long in many places; on this side (Q. J.) no wild flowers, and grass less than 1 inch in most places.

Mar 3. On Feb 28 I lay in wait for the Mindogo Covey at their regular feeding ground, but they fed 150 feet out of range. Losing all hope, at last, I rushed out and banged at them as they were flying back to cover, but got none the distance being too great. Probably as a result of their being scared at their feeding grounds, however, they fed in a different part of the field tonight, 150 yards from the



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usual place. They made very little  
noise, too, and did not venture  
very far away from the brush, nor  
could I tell where they went to roost. I  
sneaked away without disturbing them.  
Outside quail were around the Q.D.  
as usual this afternoon.

Mar 4, 1933.

First cuckoo at 5:56 A.M.; from  
the Q.D., it was. I don't think the birds  
flew down from the roost until  
somewhat later, however. During  
the morning two ♂s, a banded one  
and an unbanded one, kept  
running up and down along  
the n.w. cor of the Q.D., with  
one or more Q.D. birds inside  
keeping opposite. Sometimes the  
outside quail, suitors evidently,  
would stand still under the bushes,  
heads pulled in, eyes half shut,  
dozing.

I shot at the unbanded one  
with my .22 but only broke  
his wing; he ran off into the  
bushes.

2:37 - more calling and squalling



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around Q.D.

Trapped today:

No.	Old Color	New Color	WT.	Sex	Age	Hour	Trap	Remarks
A438060			not changed	rt+y	192.6	♂	imm	5:50 P.M. A
A438069			not changed	lt+y	181.0	♀	ad	2:45 P.M. A
A438056			not changed	rt+y	192.0	♀	imm	" A
A438059			not changed	rt+y	197.0	♂	imm	" A
A438067			not changed	rt+y	189.2	♂	imm	" A
A438033			lt, l; y, r - lt, l		178.7	♂	ad	3 P.M. B
529446			rt+w, l; rt, r - rt, l		199.8	♂	ad	3:30 P.M. 1
529437			rt+y, l; w, r - rt, l		192.7	♀	ad	" 1
529447			already changed	w	197.4	♂	imm	" 1

} together

Another proof that the spirit of courtship, and of jealousy, is with us: the two outside birds mentioned above, dashed at each other (that is, one dashed at the other) twice this morning, before my shot disrupted things. The one dashed at merely ran, out of the way, as is usual in such conflicts.

To night, at feeding time, one of the Q.D. ♂s dashed at another Q.D. ♂ in the same manner.

They went to roost at 6:22 P.M.  
 Mar 5, 1933. Evidently there were only two suitors outside the Q.D. One of these I wounded, as noted above, the





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other, A 438033, I trapped (see preceding page), and bled it at about 8 P.M. Neither have been seen since, and no others have been seen coming or squalling around the Q.D.

May 6, 1933. At 6 P.M. bright outside quail were ~~in~~ coming in the distance, in spite of the evening being cloudy (it was warm); the season advances.

March 7, 1933. Mills College, Oakland, Calif. Ethel tells me that today she saw a ♂ and ♀ quail dart out of a mass of shrubbery as she approached, and go away together, as though paired. She looked about in the vicinity, but could find no other quail there at all. Of course the occurrence of the two together might just have been chance.

The following hypothesis regarding the ecological requirements of quail occurs to me: Quail are not susceptible to cold weather so long as they have some shelter from the direct force of the elements and so long as they have plenty to eat.



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However, in the northernmost portions of this range it seems likely that a sufficient food shortage may <sup>in winter</sup> occur to prevent their increase from year to year and in the event of a more than usually severe winter, to wipe them out altogether.

The food shortage might occur as a result of (1) the covering up of the ground with deep snow for long periods of time

(2) a considerable interval of time between the period when seeds ~~were~~ <sup>are</sup> still abundant enough to furnish food for quail (and their competitors, the mice and the migratory sparrows), and the period when tender young vegetation appears upon the earth in the spring. In most of California the appearance of new vegetation probably occurs (as it does here) about the same time that the seed seeds of the preceding fall are nearly gone, but in more northern regions (possibly <sup>County</sup> Modoc), the spring vegetation



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may not appear until much later thus introducing an interval of very scant material for quail, which, in turn (as with the Q.B. birds this winter) would make them thin, weak, and ~~poor~~ deficient in vitality.

March 9, 1933. Alp Co. R. The cu ca coming heard outside the Q.B. again today, but whether from the same or from new suitors I could not tell.

Mar 10. Paul Shaw saw a suitor on top the Q.B. today - it was 12:45, 4:10 (caught originally at trap III). The cu ca coming fairly frequent today in spite of our pounding and sawing on an adjacent enclosure.

Mar 11, 1933. Mills College, Oakland. Ethel saw a flock of 10 or more quail on the grounds, showing that not all, at least, are paired as yet there, or at any rate that they have not yet broken up into couples permanently.

Mar 16, 1933. We are accustomed to talk





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about quail diminishing in numbers under unfavorable environmental conditions, in an abstract way, but how many of us actually visualize the process and affects the individual bird? I have an inkling of a part of this process.

Take an area which will carry only about 20 birds in the winter: The survivors will number say 18 by the breeding season. This 18 (9 pairs) will <sup>hatch</sup> produce <sup>on the average of</sup> 9 young per pair, = 81 young + 18 adults, or 99 birds — in an area which will hold only 20 birds during the winter. The mortality will commence at the start, perhaps, or it may not commence until early winter, depending on just how unsuitable food or cover is. If food, or cover, is very scant even the young quail will suffer an abnormal mortality due to the fact that they will have to travel farther from cover each day to obtain food than they would under more favorable conditions.





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By having to travel farther, they expose themselves more to the attacks of predators, the latter being the immediate, but not the ultimate, cause for the mortality of the birds. If cover and food are abundant, on the other hand, the birds can remain day after day in sheltered places and will expose themselves a minimum amount.

In localities where food or cover are not quite so scant, the mortality may not become heavy until the midwinter period when most of the available seeds are eaten and the green stuff has not yet appeared. At such times (midwinter) mortality will be heavy, however, because the birds will be forced to wander out into the open a maximum amount each day in order to find sufficient food. In any event, the population of 109 birds will diminish to



twenty birds once more as a result of this. A resident of such a locality, observing the rôle of the predators in this reduction, would probably blame them, whereas the fundamental cause would be the insufficient nature of the cover range. If the cover range were adequate, on the other hand, the quail could hold their own in spite of the predators. Heavy loss from predators, then, is a symptom of environmental insufficiency, and predator control represents only a superficial remedy - like giving a patent morphine to stop the pains of a broken leg, but doing nothing to set the leg itself. If the quail were not killed by the predators they would only survive in a weakened condition anyway, to the detriment of the succeeding generations.

The fear of <sup>many</sup> animals <sup>including quail</sup> is probably



similar to the terror of small children, and like that of children it is easily aroused, and is somewhat indiscriminate (except that animals have more acute sense-organs). Children will be frightened by a piece of wood or a chair, or an old sack, if <sup>these objects are</sup> partially obscured by darkness, and I ~~have~~ <sup>have</sup> myself, even at my age many times given an involuntary start upon seeing imperfectly and for the first time a stump or dark rock while in the midst of thin woods. Only yesterday I jumped when I <sup>suddenly</sup> saw the cross member of a telephone pole rearing its dark <sup>scaly</sup> form out of a clump of small trees, beneath tall dense woods. So with quail, and other animals, only more so, probably, because they had more fear, keyed up nerves (metabolism more rapid); they start and run at nothing as often as not. And when quail, for example, are pursued by a hunter, and





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burst out of their hiding places with cries of fear, they are like children who flee screaming from some dreaded <sup>but in reality harmless</sup> shape, (such as the old crazy woman that lives in a hut outside the village and shakes a stick at them and mutters) — and probably the emotions of quail and children are much the same, vague and unreasoned. My sparrow-hawk, which takes fright at a strange pair of gloves, or a woodrat, or anything else strange, is another example.

March 18, 1933. Trapped today.

Band No.	<del>Old</del> Color	New Color	Sex	Wt	Hours	Trap	together
A438072	—	B, l	♀ imm	16.4	5.00 m	3	}
A438073	—	B, l	♂ ad	21.6	"	3	
439329	—	Y, l	♂ ad	202.9	9 p.m.	5	
A438043	b + y, l; n, n	y, l	♀ imm	172.9	"	5	}
A438046	b + w, l; w, n	y, l	♂ imm	213.7	"	5	
A438024	n + n, l; w, n	b, l	♂ imm	208.0	"	5	
A438074	—	y, l	♀ imm	184.6	"	5	
A438075	—	y, l	♂ imm	202.9	"	5	
A438076	—	y, l	♀ imm	183.7	"	5	
A438077	—	y, l	♂ imm	188.8	"	5	
A409285	—	w, l	♀ ad	199.9 (187.7)		3	}
							a light ♂! a heavy ♀! 2 together



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Band No.	Old Color	New Color	Sex	Age	Wt.	Hours	Trap	
529445	brw, l; y, n.	n, l	♀	im	192.7 (177.6)	9:30	3	heavy!!
<u>A409363</u>	rt y, l; w, n	w, l	♂	ad	216.5 (203.2)	"	3	together +

The weights of the above last three birds at 10 A.M. the following morning are given in parenthesis below the evening weight. The crop of the ♂ held contents equal to capacity of a large thumble; those of the ♀s held only one or two seeds - or possibly they were stones.

The Q. D. quail went to roost at 6:43 P.M. Only seven could be counted; looks as if another must have died. The ceca coming and running about of outside to countries, especially in the mornings.

Yesterday E. saw a covey at Mills, all the birds being together. This indicates that pairing is still in its earliest stages.

March 19, 1933. When I released the above three birds this A.M. I noticed that one would follow another as they flew away, dodging and turning just as ~~it~~ <sup>the other</sup> did, and alighting where the other alighted. This gregarious-



ness, even in time of danger, I have observed other times as well

other I put

a thrasher inside the Q.I. today, the original two must have died this summer). <sup>Found dried remains of one May 3, 1933.</sup> Some ~~walk~~ the water has been turned off since Feb. 28, this will indicate that whether thrashers, like quail, need no water during the winter months. The golden crowned sparrow mentioned earlier (see ante) has not shown any ill effects at the turning off of the water.

Photos of  
Quail coveys. ✓

Took photos of (1) line of roosting trees (oak, oak) down at trap 5, barley field (2) the quail range of the Mindego covey (3) poison oak roosting sites of the Mindego Covey. ✓

See under <sup>6</sup>Environmental Correlations "Notes on the Presence of Quail Foods, Alp. Creek Ranch, p. 6, for a note on the lateness of the appearance of spring wild flowers (3-4 weeks) as compared to their appearance in the warmer sections of Oakland, Strawberry Canyon, Pacific Grove.

March 1, 1933 Alp. G.R. The Q.I. quail and also





the outside birds, have lost their former fear of the sparrow hawk which we keep in the cage 15 feet from the Q.D. The courting outside ♂s feed near the cage, and perch on top of the Q.D. and <sup>moor</sup>shook right near it, with the sparrow hawk moving about and klee-klee-kleeing inside. When a ♂ sparrow hawk flew into a nearby tree and alighted, however there was a general alarm, and no outside ♂s <sup>quail</sup>were visible for some time thereafter.

The report of a gun, if no visual or other stimulus is associated with it, frightens quail only a little, and often not at all. This morning I shot at one quail twice with a .22 rifle at a distance of only 10 feet, shooting from inside the shock. The rifle shoots wild, and I missed him both times. He looked around, but did not retreat from his exposed position on top of the Q.D. Later I <sup>killed</sup>shot him with a 410 shot gun, but did not go out (and show myself) to retrieve him. Because the ~~q~~ other quail saw nothing they were





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but little alarmed, and soon were back again. I next shot 8 times in rapid succession, <sup>with the .72</sup> at another counting ♂ on top the Q.D. The rifle still fired wild (distance 50 feet this time!) and after the 8th shot I gave up, leaving the quail preening and "just sitting" on top the Q.D., unalarmed. Later I got him with the 410, and this time the Q.D. quail and others were alarmed, and kept silent a long while.

The Q.D. quail awake, that is started calling, at 5:51 A.M., at same time that turkeys etc. were giving their customary institutional choruses.

There is much cupsawing of suits ♂s around the outside of the Q.D. these days. Once or twice I have seen one of these ♂s dash at another.

The two quail shots <sup>(as mentioned above)</sup> were as

follows: [acted Q.D. birds]

Sex	Age	WT	Hour	Remarks
♂	im	204.9	7:30 A.M.	No A 438040; n, y l., shot by mistake (!) Crop jammed full of scratch feed, gleaned from spilled grain 15 feet from the sparrow hawk cage

"return",  
about

♂	im	169.1	8:15 A.M.	Crop entirely empty, perhaps because the bird was too busy counting
---	----	-------	-----------	---



to eat; stomach empty except for grits.

Buster Mc Lellan tells me that he thinks quail need water in mid summer when <sup>the</sup> ~~the~~ <sup>vegetation</sup> gets dry and brown, for the following reasons: (1) He has never seen coveys in summer that were not near water.

(2) On several occasions, in regions where quail were present in the summer but no water visible to the residents there, he and others made special searches for water (for purpose of extending their cattle range if possible) and in each case found water. Sometimes it would be only a little hollow holding hardly a cupful, deep in the brush, but that was enough for the quail. (Vide ante, remarks of Mr. Kean at San Diego, on water seepages that temporarily evaporated during the hot part of the day, but appeared again after the heat was abated).

Buster says that two years ago, this spring there were no quail either at the Mindero Covey Range, or further down the canyon. The only quail present was a single small covey deep in the brush near an isolated spring over near Mindero M. He says that a surprise then - as a result of the



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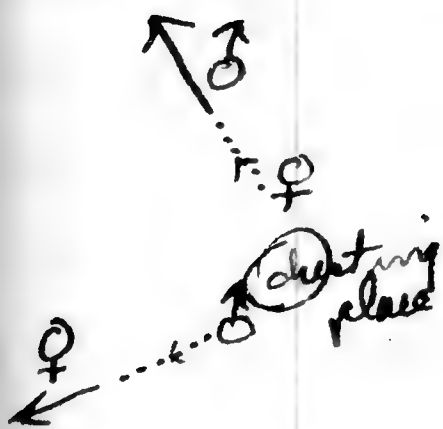
abolition of hunting - the Mindogo  
Covey and the Canyon Covey have  
appeared during the two years (I must  
get Jerry Ralph's corroborations of this if  
possible, or Machado's)

Ethel gives the following notes, as of March  
20, for quail at Mills College, Oakland:

- (1) the pair  
moved  
to here  
without  
joining  
the flock.
- an earlier home
- ← flock of 20 quail
- x a pair here

(2) 9:20 A.M. A second (probably 2nd) pair  
seen quite a distance away from  
the above mentioned pair.

(3) 6:20 P.M. Two pairs of quail dust  
bathing and feeding in a little  
out 10 feet from cover, out in  
full view of the science building  
(the quail are very tame at  
Mills, and there are no cats to speak  
of). Presumably one of the ♀s ran  
off, and immediately one of the ♂s  
followed; shortly after this the  
other ♂ ran away in another  
direction, and the remaining ♀  
followed after him. Looks like  
pairing, alright!







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March 23, 1933. Alp C.R. The commotion  
outside the Q.S. continues. Saw two ♂s,  
return) } one of them a m+y, l banded one, and  
faint) } the other an unbanded bird, standing  
on top the Q.S. Twice the banded one  
lowered his head and noded the  
other, the latter retreating, as the attached  
bird usually does.

March 26, 1933. There is at least one cooper  
hawk in the Minderoo Coney & range  
(see *Accipiter cooperii*, p 20), but he  
evidently hasn't reduced the quail  
much, thanks to their good cover.

TP Under date of March 20, Lancaster, Calif.,  
Gordon H. True, Jr. writes, "The quail in  
this vicinity have all paired off. I  
surmise that we have the jump on  
your section of the quail country in  
this respect." Right!

March 29, 1933

Q.S. birds flew up to roost at 6:49 P.M.  
this evening.

March 30, 1933. The circa covering continues,  
starting at about 6 A.M. and  
lasting until 9:30 or thereabouts,  
from then on being only sporadic.



So far as was one of the outside sutors  
 As this morning that he only ran  
 a few feet away when I leaned out  
 of the window and waved my arms  
 at him. He still remained on top  
 the Q.P., about ~~35~~ 40 feet away,  
 and so I went and got my gun,  
 returned, and shot him.

Ethel, about 11 A.M. found another  
 I running about in the brush  
 near the barley field, so tame that  
 he ~~allowed her to approach~~ actually  
 came out of the brush into full  
 view and stood still, allowing  
 her to shoot him. Data on these  
 two as follows:

Age	Sex	Wt.	Hours	Remarks
imm	♂	171.4	7:30 A.M.	On top of Q.P.,
imm	♂	221.3	11:15 A.M.	Barley field near Q.P.

A few, very few, seeds noted in one  
 of the crops, but the seed <sup>supply</sup> crop is  
 about used up, evidently, and the  
 birds are eating succulent young  
 greens instead. Examined the  
 stomachs of 21 passerine, seed-  
 eating birds (see *Zonotrichia*  
*coronata*, p 2, for the data), at



*Lophortyx c. californicus*.  
~~*Zonotrichia*~~  
~~*coronata*~~

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this time, and the evidence corroborated that furnished by the quail stomachs. Seeds still figure in the diet, but only to a minor extent, fresh "greens" such as root tips and sprouting plant tops preponderating.

8:15 P.M.; sun has been set about an hour and 20 minutes.

Moderately bright moonlight illumines the hills. About 150 feet s. of the regular Mindero Quail range are several clumps of live oaks and Calif. laurels growing on the <sup>florid</sup> hill slope. As E. and I walked up the road at this point we suddenly heard from one of these clumps, 200 ft down the hill side, a heavy beating of large wings in the foliage - the kind of noise a horned and/or similar large bird makes when trying to navigate among dense foliage branches. At the same instant there was a chorus of pit-pits from a covey of quail roosting





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in the same tree, and the explosive  
whirr of many wings (of quail)  
as the frightened birds fled to  
other parts. Whether the owl  
was successful or not could not  
be ascertained by the sounds,  
and nothing of all this could be  
seen. However, once a roosting  
covey is discovered by an owl,  
the odds are probably all in favor  
of the latter. Even if he should  
miss the first bird he should  
be able to get another if he  
succeeds in flushing some of  
them. The flushed birds, on  
account of their rapid flight, might  
be able to out-distance him in  
open flight, but if he is at  
all persistent he should be  
able to pick one up after they  
have blundered uncertainly  
into (probably more or less  
unsuitable) cover. Quail flushed  
at night probably can not  
distinguish dense, protective cover  
from thin cover, and will alight  
as soon as they come in





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contact with either type. For this reason the alarming of roosting coveys to the point where they take flight, is dangerous to the birds.

The roasting of the Minkeg Coney in the place just described represents a slight departure from their usual range. They were seen on this same hill slope by me yesterday morning also.

April 1, 1933 - Miraflores Quail Range. Counting  
times are here indeed, what with  
the warm, sultry weather which we  
have had recently, and the generally  
advanced state of the season on this  
(sunny) side of the hills. A ♂,  
calling *cú cá cáw*, *cú cá cáw*  
from the brushy area ~~several~~  
times omitted the first and the  
last syllables of the series, the  
result being the "guar" call  
of the laying season. This was  
the only time that I <sup>have</sup> heard the  
guar call so far this year.  
It was like this: *cú cá cáw*;  
*cú cá cáw*;  
*cáw* ; *cá* ; *cú cá*  
*cáw* ; *cú cá cáw* .  
= "guar" note



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Ethel has seen two coveys of quail in the area which was formerly dense black oak woods but is now cleared and which is adjacent to the barley field (see Map I for this). These two coveys were probably from the regions adjacent to trap 3 and traps A and B, since the cleared area is only about 200 yards from these traps. She (E.) saw these two coveys both today and yesterday.

James Ralph III told me that today he saw a covey of about 20 birds on the county road north of the Skyline Blvd., at the place marked on Map III where I collected a ♀ 9/3/32. He saw them there on two different days, and Buster tells me that a covey ranges from there across the road into the barley field (marked on the map), there being a spring on each side of the road.

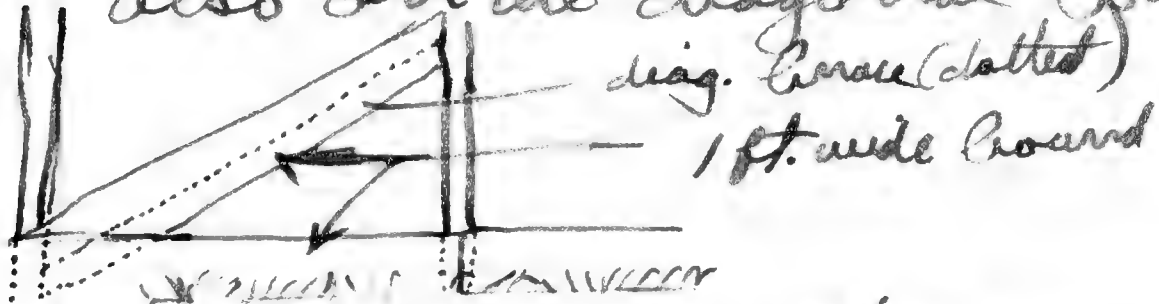
Buster tells me that he saw two other coveys, marked \* on the map (III) within the last 3 days.

April 6, 1933 Quail still call around the



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outside of the Q.S., although I have now nailed 1 ft wide boards all the way around the bottom and also in the diagonal grooves, so



that the Q.S. inmates may not see the outside birds or be seen by them. Communication between Q.S. and outside birds is restricted as a result of this, but not completely cut off, for the outside birds have learned to spend their time on top of the Q.S., which they do especially in the morning. They are at the mercy of my 410 however, in this location, which helps keep their numbers down. I got one which became trapped in a nearly complete, adjacent, water experiment pen.

Return → I found also a dead, banded quail, stretched at full length on the grass, near the west gate of the experimental grounds. She had not been dead many





# Lophortyx c. californicus 513

houses. Autopsy of her, and remarks on the ♂ which was trapped inside the pen, follow:

Band	Color	Age	Sex	Wt	Measurements	Crop	Stomach	Remarks
A 438051	7+4	imm	♀	189.5	2 1/2 inches	crop - full of	scratch feed, probably picked up at a nearby quail trap.	mouth green; a few seeds - <sup>like</sup> <del>like</del> <sup>neck</sup>

2 1/2 inches, narrow contused band extending diagonally across pectoral muscles on right side; right side of abdominal cavity suffused with blood; right side of liver at same region as above, with latter blood.

Eggs still small

This bird must have died from hitting the fence.

April 7, 1933 Q.J. quail started calling (= "got up") at 5:31 A.M. Apparently it is a certain

2nd Panamint  
photo of  
Quail  
Range.

♀ inside the Q.J. which does most of the calling. I suspect that this calling of ♀s, done in answer to distant calls of wandering ♂s, brings the latter into proximity.

As mentioned a few pages earlier, the Q.J. quail, although suffering a food shortage, still did not get



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all the seeds in their territory, as proved by the luxuriant new growth now springing up. This may be in part because in their scratching activities - done for the purpose of uncovering seeds - they at the same time bury other, adjacent-lying, seeds.

April 8 & 9, 1933. Vicinity of Strathmore, Tulare Co., Calif. This is flat, San Joaquin Valley land 3 miles from the nearest (and) Sierra foot hills. It would be trees but for eucalypti, oranges, olives, and various other orchard trees, and it would be bare of <sup>most</sup> all lesser plants except grass, were it not for the grapes, forage crops, and garden crops. All these cultivated plants have transformed the region into a rich farming zone, albeit a nearly tree less one in most places. The quail have responded by invading the sections, in spite of the dearth of cover - which is perhaps compensated for by the scarcity of predatory animals (birds are few, also



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hawks, skunks, coyotes, no Bob cats at all, (because there is no cover for these types). I was surprised to find the quail out in open grassy (hay, grazing) fields, and in orchards where there was hardly any ground cover other than short (6") grass. Of course there is an abundance of water and feed, and some of the trees present, as oranges for example, may furnish roosting sites. Mrs. Raleigh Wilson says that the quail nest in the vineyards, placing their nests against, and partially beneath when possible, the straggling "bunches" of the vines.

I forgot to mention that the m<sup>th</sup> ♂ ut. 165.1 (p. 513) had a dozen or more head lice visible; these were saved. They are the first I have seen on quail.

April 11, Alp. G. R. by G. D. Since I shot the last suitor ♂ there has been only one other ♂ in attendance. He is b+h, l; b, n, A438036, an m<sup>th</sup> ♂, and has been seen by me not only today, but also several

Return  
of a suit






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days ago, although I forgot to mention it at the time.

Today Ethel saw at least six different pairs of quail during a ten minute walk to the place where we started baiting for future trapping work.

April 12, 1933. Evidently the calling of the ♀, such as I have heard within the Q. T. during recent weeks does serve to bring would-be suitors to the spot. Certainly several ♂s were attracted to the Q. T. in answer to the calls of the ♀s, and the following instance helps confirm this: E. saw a ♀ fly up onto the roof of the building adjoining the Mills College Swimming pool and call *cue ca cow* from there. A moment later a ♂ quivered and flew up onto the roof beside her.

April 13, 1933. Alf. G. R. operated the traps today:

Band	Color	Age	Sex	Wt.	Prep.	Remarks
438028	new	h, l	od	♀ 196.5	5	This bird has lost the red band from her left leg and the white band is coming off.  being





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around her hind toe and leg, a rather serious condition, as it might interfere with the use of that toe.

[A409315] <sup>old col</sup> w+y, l <sup>new col</sup> in ♂ 193.9 5 6:30 P.M. The white band (w+y, l, above) had come off! Replaced.

[A438048] <sup>old col</sup> w+y, l, <sup>new col</sup> y, l ad ♀ 200.2 5 6:30 P.M. The above three all together.

[A438044] <sup>old col</sup> w+y, l, <sup>new col</sup> y, l ad ♀ 191.3 3 6:30 P.M. one of the bands had come off this bird, too!

[A438046] y, l. in ♂ 212.7 3 6:30 P.M.

A438078 l, l in ♂ 193.4 3 "

The above three all together

[529445] m, l in ♀ <sup>(187.8)</sup> <sub>(176.2)</sub> 5 10:20 P.M. No mites around anus (the ones above were not examined). Citrus teeth removed from near the rt. eye.

[A438076] y, l in ♀ <sup>(178.4)</sup> <sub>(166.4)</sub> 5 10:20 P.M. 3 mites, + around anus; collected

[A409285] w, l. ad ♀ <sup>(203.0)</sup> <sub>(189.9)</sub> 5 10:20 P.M. Her white band had come off! Replaced. No mites seen.

The above three together. Released the following A.M.

[A438059] w+y, l in ♂ <sup>(189.0)</sup> <sub>(177.1)</sub> B 10:45 P.M. Had lost one of his bands! Replaced. No mites seen

[A438065] w+y, l in ♂ <sup>(198.9)</sup> <sub>(188.8)</sub> B 10:45 P.M. No mites seen

[A438062] w+y, l in ♀ <sup>(190.1)</sup> <sub>(179.7)</sub> B 10:45 P.M. No mites seen

[A438052] w+y, l in ♀ <sup>(194.4)</sup> <sub>(182.9)</sub> B 10:45 P.M. No mites seen. The above 4 together. Released the following A.M.



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No.	Color	Age	Sex	Wt	Drop	Hours	Remarks
A438050	ad - b + w, l; b, r. new - y, l	ad	♀	215.4 (208.8)	3	11: P.m.	a heavy ♀: + No mites seen
A438035	l, l	ad	♀	200.0 (188.2)	3	11: P.m.	No mites seen +

The weights given in parentheses after under each wt. are the weights taken in the morning (usually noon) before feeding.

April 14, 1933. Trapped again.

A438049	ad - b + w, l; b, r. new - y, l	ad	♂	192.2	3	4:45 P.m.	Saw no mites
529439	ad new, l; w, r	imm	♂	188.4	1	4:45 P.m.	Didn't look
A438068	w	ad	♂	197.3	1	"	"
529448	w	imm	♀	195.3	1	"	"
529442	w	imm	♀	196.6	1	"	Had feathers colored band? in sack
529441	r	imm	♂	212.5	B	5:30 P.m.	Didn't look for mites
A438047	ad b + w, l; w, r new y, l	imm	♂	187.7	B	"	"
A438048	y	ad	♀	191.5	B	"	"
A438063	ad new y, l	imm	♂	209.9	B	"	"
A438036	b + l, l; b, r.	imm	♂	184.8	B	"	"

This is the lady that stands on top of the Q.I. each morning (including this morning), counting, thereby washing me up.

529438	r, l	ad	♂	197.6	1	6:20 P.m.	Didn't look for mites.
A438027	ad new y, l	imm	♂	196.8	1	"	lost one of band
A438029	b + l, l; w, r l, l	imm	♀	193.6	1	"	Didn't look for mites.
A438079	w, l	imm	♀	180.2	1	"	"
A438056	r + y, l	imm	♀	200.3	4	"	"
A438067	r + y, l	imm	♂	187.0	4	"	"



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No.	Color	Age	Sex	WT	Trap	Hour	Remarks
A438069	h+y	ad	♀	191.6	4	6:20 a.m.	
A409281	h+y	ad	♂	207.2	4	"	had lost one of his bands
A438050	y, l	ad	♀	195.7	3	7 P.m.	
529445	h, l	im	♀	182.0	3	"	
529450	h, l	im	♂	189.7	3	"	
A438070	h, l	ad	♂	190.8	2	"	
529443	h	ad	♀	193.6	2	"	

Yesterday I heard a ♂ quail give the quail note repeatedly during the afternoon, the call being given at about two minute intervals for fifteen minutes or so at a time. This is the first time I have heard the call this side of the ridge. Nearly all of the quail, although probably showing some sexual activity, in the early stage, are still in the customary flocks, as the above trapping records show. Several times each day I scared up whole (= not split up or scattered) coveys from near the traps. Heard the quail note, evidently from the same ♂ as yesterday, several times today. The birds inside the Q.D. went to roost at 7 P.m. last night, 7:03 - to 7 tonight. April 15, 1933 I have been trapping for approximately one month on the Mindogo Covey





range, using grain, one trap, and  
baiting in the new spot on the  
hillside where the coveys always  
used to be heard. As indicated  
previously (see notes on barred and trying  
to catch quail about a month ago, and  
other notes about April 1) the quail  
have been scattering out more  
with the advent of the pairing season;  
also, I have been hauling the traps  
spring continuously by the dozens  
of jays and ~~sp~~ sparrows which  
I have caught. The operation of  
this trap, in stormy weather,  
late at night, on hot days, cold  
days, all the time has been very  
arduous. Until last tonight I have  
never got a quail however. This  
afternoon I put a ♀ decay quail  
into the central compartment of  
the trap, and at last got a bird,  
as follows: m. ♂, wt. 162.8. <sup>at 9 p.m.</sup> Several  
lice on neck feathers, many  
neck feathers heavily covered  
with louse eggs (collected).  
Testes enlarged - O.  
The ♀ (page 518) taken dead from the



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- trapping bag (east side of the ridge where the season is later), had a relatively less developed ovary.

April 16, 1933. Alf. Co. R. Rainy, that is "liquid sunshine", also windy at times. Heard no quarring today, either side of the ridge. The ad. ♂, ♀, & ♂, ♀ winter ♂ was on top of the Q.D., as usual, this evening.

The scattering out of the winter flocks on the Mendocino side of the ridge is indicated by the fact that April, 4th I saw a ♂ on the road between the Sayhine Blvd. and the Mendocino turn off - a place I have never seen quail in winter. He refused to leave the road, flying just ahead of me, and then, when overtaken, back past me to the region where originally scared up. A ♀ must have been somewhere in the vicinity.

April 19, 1933. Mills College Campus, Oakland, Calif.  
E. saw ten pairs of quail feeding in



the late afternoon on the oval plot of grass (150 ft greatest diameter) near the Science Building. They come out to feed there often at this time of day. Five pairs were definitely segregated during the feeding, each ♂ with each ♀; the other five were where they could not be seen so easily, but they seemed to be equally strictly paired.

I have noted on several different days when at Mills that the quail there are still in loosely organized coveys in spite of this pairing. Pairing takes place within the covey, before the scattering of the birds.

April 20, 1933 Mills College, as above. Covey formation as yesterday. I heard one ♂ give the quail note somewhere in the distance; evidently he has established territory; probably his ♀ has commenced to lay. This latter hypothesis is borne out by the fact that one of two captive Mills quail, caught yesterday, laid an egg in the cage.

Caught a ♀ at Mills today - data as follows

♀ ad 142.7 (22 hrs after death) Stomach <sup>trapped</sup> 6 P.M.  
 April 21, 1933 - Alp. Cr. R. <sup>Stomach - seeds, veg. material, grain</sup>  
 The ♀ which I caught during trapping



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operations here April 14, and have used as a decoy ever since (with only 1 ♂ caught by her so far, over at Mingo Canyon range). I am now liberating at the place where originally caught, since I have a Mills substitute for her.

Data on the released bird:

Band	Col.	Sex	Wt.	Hours	Trap Caught	Liberated
A438080	1744	♀	181.6	3 P.M.	4 Apr. 14	Apr. 21

Birds foraged very bloodily from trap wires but not seriously injured, the blood flowing freely from a seal made at times when she was first caught.

6 P.M. Q.D. I threw out some scratch feed and the Q.D. birds very quickly, although furtively, came for it. Like the Mills Canyon birds, they seem to relish grain greatly at this time of the year, when most seeds are out of season. Accompanying the Q.D. birds were two ♂s, one no. A 438036, and the other banded as well but not identified. Both strutted and checked, did not fight, aroused no visible or audible reactions from the feeding Q.D. ♀s below. The Q.D.

Return of  
a scout









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Birds show no evidences of having paired at all, ♀s and ♂s feeding now was, now far from each other in hutor mess fashion. One ♀, either b+y or b+w, always stays far in the rear among the tangled vines at the back of the Q.D., wandering out to feed with the others only after a long time. A certain ♀ used to do this same thing this winter so much that for a long time I thought I had only 7 birds. Probably it is the same individual.

The boards around the base of the Q.D. seem to have helped, as there are not (at least as yet) as many scutor ♂s hanging about as last year.

8: P.M. - Victory! after fine weeks of the hardest ground I ever put in at anything. My deary ♀ in the Mirdes Corey trap brought in 8 birds, as follows:

Band	Wt.	Sex	Age	Hour	Remarks
—	185.8	♂	ad	8 P.M.	Saved as specimen. No mites seen.  greenish gray
—	172.9	♀	im	"	specimen  no mites seen
—	182.1	♂	im	"	specimen  didn't look for mites
—	188.8	♂	ad	"	specimen  { no mites seen



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Band	Wt	Sex	Age	Hour	Remarks
—	182.3	♀	ad.	8 P.M.	5 specimens didn't look for water
—	168.8	♀	ad.	Eggs	no water (see cage)
see below A438081	162.7	♀	ad.	"	didn't look for water
see below A438082	170.6	♀	ad.	"	didn't look for water
—	170.6	♀	ad.	"	probably the mills one,

judging from tiny seeds (millet) felt in crop.

From the above, it will be seen that:

- (1) Quail do not get their crops packed full to distension until just a few minutes before roosting time. These quail caught between 4 and 6 P.M., probably, had crops only about  $2\frac{1}{5}$  full.
- (2) Breeding (i.e. copulations, egg-laying) has not yet commenced up here.
- (3) A few seeds are still taken in along with green vegetation, although the latter makes up the bulk of the contents of crop and stomach.

The decay which I have been keeping in a pen has a habit of hiding in the tall (8-9") grass when I come near to catch her. She will crouch



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claws under the <sup>downy</sup> hanging grass blades until I actually touch her with my hand, at which she will explode out into the open and away.

She layed another egg today.

April 23, 1933

Set the trap out and got several quail. Some animal, or hawk, evidently got one of the quail out of the trap (feathers all about) and killed two others that were in the trap - as the latter died as a result of beating about frantically inside. The five birds, along with one other, to be mentioned later, released at trap 5 Q.D.

	Band Color	Wt.	Sex	Age	Hour	Remarks
Released	A438083	17.7; 185.5	♂	ad	5:20 P.M.	Released by Q.D. didn't look for insects
Released	A438084	17.7; 176.8	♂	im	"	" " " "
together	A438081	164.8	♀	ad	"	" " " "

Two dead were as follows

Wt.	Sex	Age	Hour	Remarks
183.6	♀	im	ad - 10 P.M.	
partly eaten by hawk	♂	ad	"	"

See under Weather Notes, pp. 35-36, for account of recent unusual cold weather and its possible delaying





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effect upon quail nesting. Also account of the daily inundations of fog - resembling a vast tidal wave, semi-daily - which takes place over in the Mirages.

On April 18<sup>th</sup> Dr. M. Habmaier, Pathologist for the Division of Fish and Game, Hooper Foundation, told me that some quail had been brought to the Hooper Foundation two years ago for experimental purposes and later released on the grounds. Prior to that date there had been no quail on the grounds, but subsequent to the liberation of this lot of eight or ten, Habmaier observed them to increase each year until now there are twenty or more. Even while he was talking I saw several from the window of his lab.

The grounds referred to include a steep <sup>moist</sup> hillside rather heavily covered with grass and creeping vines. A fairly thick stand of eucalyptus trees occupies most of the area, but the vines and



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tall weeds and grass are luxuriant enough to provide good cover, and food. The quail range over a considerable portion of the hill, as Dr. Haberman has had occasion to observe while out walking.

In spite of the fogs (S. F. fogs being almost proverbial), the birds are able to raise young in this area, which is isolated on all sides by business and residential sections and which must be rather heavily infested with cats.

Haberman says, however, that whereas unconfined quail can live in this moist environment, the same quail, if kept on a restricted part of these same grounds, would die in a short time of cooediosis. The birds carry the organism in a concentration that is not dangerous, at all times, and so long as they have a wide area to range over, they do not become sick. Sickness only results when the birds, as a result of being



confined upon a small area, become constantly re-infected as a result of feeding upon the contaminated ground. The wetness of the soil, combined with the shade and the relatively moderate temperature of the region, all conspire to favor the development of the organism; that is the reason that no game establishments can succeed in the immediate vicinity of the Bay region, Holmquist says.

Release

The Mindo Quail A 438082, used as a decoy, now liberated, given the following colors w, r; m, l. Released at Q.D.

~~2 P.M. ♂~~

6:45 P.M. ♂ A 438086<sup>3</sup> got caught in a rabbit box trap near the Q.D. This is the first time I have ever known a quail to enter a dark hole. He had to go back at least a foot from the entrance in order to spring the trap (it was the small size box trap).

One of the Mills College decoys banded ♀ im. no. A 438085. She will be





liberated later, being retained at present as a decoy, along with another Mills College bird (unbanded as yet).

April 28, 1933. Mills College, Oakland, by Science Bldg. Some girls found a nest containing about 9 ~~14~~ fresh quail eggs today.

May 2, 1933. Alp. Ex. Ranch. At least some of the quail about here are still in flocks, for I scared up a bunch of 8 or 10 by the Los Trancos Road. However, on April 30, I nearly ran over a pair that was running down the road, at Menlo Park, by the R.R. crossing.

May 5, 1933. John B. Price, of Stanford University (see his quail article in Condor) told me that he saw a ♂ quail incubating at the Stanford campus this year. The ♀ had deserted (?), and the ♂ hatched the eggs successfully. He said that several broods of young were present already around there. However there are also quail still in flocks, he says, and thinks that these are non-breeders.

Wright M. Pierce of Claremont Calif. told me that he killed a rattler (out on the desert?) that had a young





mountain quail in its mouth.

He said that a certain water hole which was visited by great numbers of desert quail (*L. gambeli*) during the summer was no longer visited by them at all after the rains, when green vegetation sprouted up.

He also said that at Dead Man's Point, Mojave Desert (near Box S. Ranch), where there is absolutely no water, mountain quail are present all the year round and breed there (he has found young). He knows there is no water, even seepage, because nowhere is there any water-indicating vegetation, not even tiny patches of it in cracks in the rocks.

May 6, 1933 Gordon True says that when first released on the refuges which he has been establishing around Lancaster and San Bernardino, the game farm raised quail and the native quail would fight <sup>apparently just the ♂s</sup>. Sometimes the native quail would win, sometimes the introduced. Now, however, native and introduced have mingled, ~~not~~ pairing irrespective of origin,

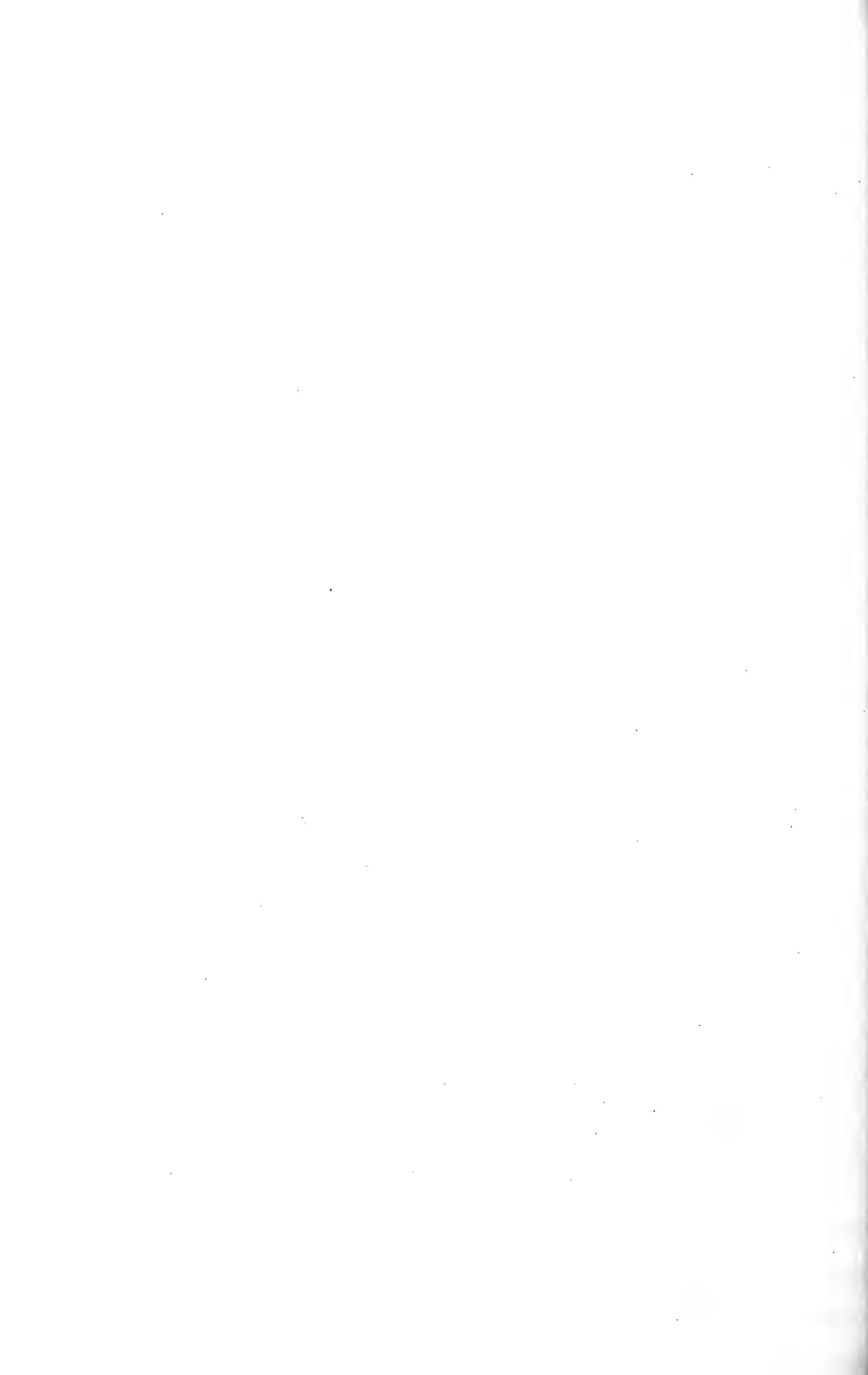


except that he says that there are more unious between non native and native than between either of the remaining two possible combinations.

The original fighting took place even in December, when the newcomers were first released. Gordon says that bands of sheep will behave in the same way, original residents picking on newcomers. (Horses do, too).

Banded (= game farm raised) quail are noticeably tamer and easier to approach by hunters than the wild birds, Gordon says.

At the Life Sciences Bldg, U.C. Campus, Oakland, I heard quail giving their alarm calls one or twice (see last year, about game, for note on spread of quail on campus). The proximity of Strawberry Creek, and the planting of numerous cover-forming shrubs at the time of erection of the Life Sciences Bldg. may have something to do with it. Any indication of the way in which newly paired quail scatter out into regions where



quail are never seen in winter, was given by my seeing a pair, ♀ following ♂, running along the flower bed at the east end of the Life Sciences Bldg., at the back of the auditorium. Cover is exceedingly scant along the base of the building there, and farther away, in most directions, there is nothing but wide expanses of lawns. However, the region is too thickly populated with people to permit predatory animals (even cats are probably not common), so that the quail will probably prosper in the region. In the absence (permanent absence) of predators, cover is not so necessary for quail welfare although they still prefer it, and in some cases may rely upon it for food.

The reason, of course, that one finds newly mated pairs so widely scattered, and sometimes in such unusual places, is that they are looking for nesting territory.

May 8, 1933. The golden crowned sparrow which was in the Q.D. found





dead in a mouse trap there. at least he did not die from lack of water.

Released two more quail (not paired), a ♂ and ♀, from Mills College, at the Q.D. today. nos. <sup>W, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100</sup> ♀ A438086, A438087 (A438085 is still being held as a decay).

Neither were weighed, but the min ♀ was very thin as a result of her running up and down, trying to get out of her pen, for two weeks.

Heard a quail this A.M. down by the barley field, once more.

May 9, 1933. ~~Heard~~ Saw two quail, obviously paired, at the point where the Los Bravos Rd. joins the main road.

May 10, 1933. Heard the quail both this morning and yesterday morning, once or twice, in spite of intermittent rains. Time: about 7 A.M.; place: barley field below Q.D.

See under *Opheleoma*, p. 32, for evidence indicating that some (or all?) pairs have to learn to eat eggs.

This morning about 5 A.M. when the Q.D. quail came out into the open



to feed it looked as though some of them might be paired. Certain ♂s and ♀s kept close together, but this might have been chance. Tonight (7 P.M. - 7:19 P.M.; ob.) they fed in haphazard, constantly changing groupings, except for the B♀ and R♂. These latter stayed close to each other for five or more minutes after all the others had disappeared into the brush. The ♂ mostly stood still while the ♀ ate, just as last year (with his own ♀), and then occasionally he would eat a little also. A suitor ♂, unbanded, still attends the Q.D. quail at times, but since the boards have been put up around the Q.D. the latter pay no attention to such suitors.

7:19 P.M. - Q.D. quail went to roost.

Regarding water consumption: Alden Miller tells me that, like my quail, his caged quinas seem to require no free water as long as they receive fresh vegetation to eat. Whenever they are fed seeds and similar dry materials for several days, they



fluff up their feathers and become sick until water is brought, where upon they revive.

Shrikes, he says, live all summer in regions which are entirely without water. They, like the raptorial birds which also need no water seemingly, feed on moist food, however. It is the <sup>among birds</sup> seed eaters that require the most water, apparently.

May 11, 1933. The R♀ and B♂ came out and fed together in the absence of any of the others. They must certainly be paired.

May 13, 1933. Stonyford, 32 mi. west of Marysville, Glenn Co., Calif. (for description of the type of country see under Lynx, p. 14). Saw ~~two~~ a pr. of quail out feeding near a meadow, heard another ♂ calling quail not far away.

May 16, 1933. Harper Foundation for Medical Research, 4th and Parnassus Ave, San Francisco, Calif. (see ante for description of environment and information given by Holmner). Heard a quail giving the quail call today.

Released another Mills decoy.





No. A 438085, in ♀, n, n; at tail at the Q.D.

Roosting time within the Q.D. was approximately 7:25 P.M.

May 17, 1933. Much cacacoring, running about on top of Q.D. wire, and frantic squalling. I should say that these courtship activities had about reached their height.

The B♂ and R♀ are definitely paired; they always stick together, and pay no attention to the courtship behavior of the others. Some of the other Q.D. birds seem to be somewhat informally paired, sticking close each by each for quite a while, but later appearing separated from one another. I am tabulating these associations <sup>on a</sup> separate page, and when the results become evident

I will summarize the whole, giving a description, if possible, of the whole pairing process within a copy. From the strong <sup>mutual</sup> attraction shown by outside birds to the Q.D. quail, and the paucity of paired individuals inside the Q.D.,





it almost seems as though strangers stand a better chance of pairing than birds all of a flock (see Gordon's note earlier on <sup>more frequent</sup> pairing of introduced with native birds (as compared with either group with itself)). Possibly the reason may be psychological, strangers being more glamorous, i.e. serving to awaken the sexual activities. Because of their newness, while flock associates, because of their ~~for~~ winter-long familiarity, are unable to do this. If all this is true it is another argument against interbreeding. The increased vocal efforts at spring time, involving different coucups to meet, may also increase the effectiveness of the mixing process.

Returns of a  
sant. →

A 438087, Mills ♂ liberated May 8 at Q.D. (w, r; b, r, l) is trying to court the deeny Mills ♀s, by the Q.D. Q.D. quail roared (1st time, others went 1-2 min. later) at 7:22 A.M.

Photos. ✓

Took 2 more (panoramic) photos of the Ralph Ranch from Q.D. Mills, previous ones having been in good.

[Rounded out O.K.]



May 18, 1933. See under Weather Notes, p. 38, for further comment upon the probable delaying effect upon the season of all this cold weather which we have been (and still are) having.

Shot a quail (sutter ♂) yesterday A.M. from on top the Q.D. (replaced by a Mills ♀. Data as follows  
♂ mi 141.1 5:30 A.M. (5/17/33) Stomach &

crop - green vegetable matter plus a few grains of sorghum feed picked up around the Q.D. Testes must have been small as I could not them, so marked on label. Bird was shot up some. Can hunt for testes better when body fluids cleared away.

Worms that certainly look like tape worms found in the body cavity! Decidedly this is a peculiar specimen.

Trapped a bunch of sutter ♂s and a Mills released, decay at the Q.D., using another Mills decay. Birds caught between ab. 5 A.M. and 8 A.M., but not weighed until 6:55 P.M. Data as follows.



# Lophortyx c. californicus 540

No. <sup>on 0 - good down the B.S.!</sup>  
 A409364 <sup>all the old bands had come off;</sup>  
 new one put on. W

No.	Color	Sex	Age	Trap	Weight	Remarks
A409364		♂	imm	A	161.3	Underdate of 2/9/33 I have "Pop of head badly damaged by trap; weighing made."

Head is now nearly well, in fact the ~~new~~ abrasion now present may be partly new



A438088	W+Y	♂	imm	A	162.3	
A438085	lt. bl, l; r, r.	♀	imm	A	137.1	(had been long in captivity as a delay.)
7438036	lt. bl, l; l, r.	♂	imm	A	154.5	This bird has been a Q.P. sutor for a long time; must be wearing himself thin

The above birds were all released at trap 1, at 7:30 P.M. I released them there to get rid of them so I could sleep once in a while after 5 A.M.(!).





See under *Felis domestica*, p. 2, for indications that a house cat was lying in wait for suitors ♂s at the Q.I.

I think I know why quail are so inactive in wet or windy weather. When it is cold or wet they are more comfortable with their feathers fluffed out and heads hunched in, because fluffed out feathers mean a larger envelope of warm air around the body. But when they move about, as in running or flying, they must hold their feathers close to their bodies (swift motions would draw the air from loosely held, fluffed out feathers; the <sup>adaptive</sup> flattening during motion is probably due to reflex actions - see last year's notes on reflex motions of quail top knots, also), and thus they render themselves less comfortable. In a similar way, human beings, when their clothes are wet, usually feel more comfortable keeping still than when in motion. Motion drives away the little pockets of



warm air which insulate the body against the clothing; it also brings new, cold, wet areas of clothing against the skin.

May 20, 1933. Caught <sup>some more</sup> <sup>metas</sup> quail at trap A. Probably were caught in the early morning, but I did not arrive until 6:15 P.M., so the weights will be fairly low <sup>no; full, see above</sup> however, there was quite a bit of feed in the traps. Released at trap 1 at about 7 P.M., so that I could get sleep in the morning.

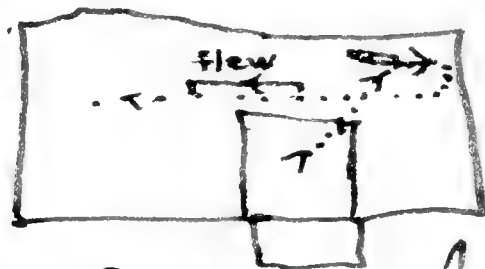
No.	Color	Age	Sex	Hours	Wt	Trap	Remarks
[A438087]	rr+b, l; w, r	im	♂	6:20 P.M.	160.8		a milled bird
[A438086]	rr+b, l; w, r	im	♀	" "	170.4		" "
[A438078]	b	im	♂	" "	184.3		band was off (!)
[A438047]	y	im	♂	7:40	187.7	3	(Released at trap 3 again)

The crops of the above, at least A438047, which I noted particularly, were full.

~~At~~ Just at evening feeding time some of the P.D. quail came out to feed. One of the ♂s (E. did not make out band numbers of any of these) chased one of the others away, but presently it returned and when the first bird started to chase it again the other



held its ground. There ensued for about two seconds a lively battle, the two ♂s, springing up at each other breast to breast like young roasters (see descriptions of this last year), where upon one ran away, as before, the other chasing it, about fifty feet. In about two minutes they were both back again, and one (same one?) chased the other in an unusually determined manner; in



several directions, as shown on the

map. Even when the pursued ♂ took flight, the other persisted in the attack, flying too, and coming to earth where the other one did, continuing in pursuit. I have never before heard of a chase continuing for more than about 15 ft.

Quail no 4438047 (p. 542) was caught in a box trap baited with grain. This is the second time that this has occurred (once several months





5-44

Q. J. quail went to roost at  
7:26 P.M.

7:26 P.M.

No.	Color	Age	Wt.	Sex	Hour	Trap	Remarks
1	Black	Ad.	100	♂	10:30	1	1st
2	Black	Ad.	100	♂	10:30	1	2nd
3	Black	Ad.	100	♂	10:30	1	3rd
4	Black	Ad.	100	♂	10:30	1	4th
5	Black	Ad.	100	♂	10:30	1	5th
6	Black	Ad.	100	♂	10:30	1	6th
7	Black	Ad.	100	♂	10:30	1	7th
8	Black	Ad.	100	♂	10:30	1	8th
9	Black	Ad.	100	♂	10:30	1	9th
10	Black	Ad.	100	♂	10:30	1	10th
11	Black	Ad.	100	♂	10:30	1	11th
12	Black	Ad.	100	♂	10:30	1	12th
13	Black	Ad.	100	♂	10:30	1	13th
14	Black	Ad.	100	♂	10:30	1	14th
15	Black	Ad.	100	♂	10:30	1	15th
16	Black	Ad.	100	♂	10:30	1	16th
17	Black	Ad.	100	♂	10:30	1	17th
18	Black	Ad.	100	♂	10:30	1	18th
19	Black	Ad.	100	♂	10:30	1	19th
20	Black	Ad.	100	♂	10:30	1	20th
21	Black	Ad.	100	♂	10:30	1	21st
22	Black	Ad.	100	♂	10:30	1	22nd
23	Black	Ad.	100	♂	10:30	1	23rd
24	Black	Ad.	100	♂	10:30	1	24th
25	Black	Ad.	100	♂	10:30	1	25th
26	Black	Ad.	100	♂	10:30	1	26th
27	Black	Ad.	100	♂	10:30	1	27th
28	Black	Ad.	100	♂	10:30	1	28th
29	Black	Ad.	100	♂	10:30	1	29th
30	Black	Ad.	100	♂	10:30	1	30th
31	Black	Ad.	100	♂	10:30	1	31st
32	Black	Ad.	100	♂	10:30	1	32nd
33	Black	Ad.	100	♂	10:30	1	33rd
34	Black	Ad.	100	♂	10:30	1	34th
35	Black	Ad.	100	♂	10:30	1	35th
36	Black	Ad.	100	♂	10:30	1	36th
37	Black	Ad.	100	♂	10:30	1	37th
38	Black	Ad.	100	♂	10:30	1	38th
39	Black	Ad.	100	♂	10:30	1	39th
40	Black	Ad.	100	♂	10:30	1	40th
41	Black	Ad.	100	♂	10:30	1	41st
42	Black	Ad.	100	♂	10:30	1	42nd
43	Black	Ad.	100	♂	10:30	1	43rd
44	Black	Ad.	100	♂	10:30	1	44th
45	Black	Ad.	100	♂	10:30	1	45th
46	Black	Ad.	100	♂	10:30	1	46th
47	Black	Ad.	100	♂	10:30	1	47th
48	Black	Ad.	100	♂	10:30	1	48th
49	Black	Ad.	100	♂	10:30	1	49th
50	Black	Ad.	100	♂	10:30	1	50th
51	Black	Ad.	100	♂	10:30	1	51st
52	Black	Ad.	100	♂	10:30	1	52nd
53	Black	Ad.	100	♂	10:30	1	53rd
54	Black	Ad.	100	♂	10:30	1	54th
55	Black	Ad.	100	♂	10:30	1	55th
56	Black						

on May 24, 1933

A438089 W Finn Caught. 5/1/33  
Rel. 5/24/33

Very thin.  
3 miles  
Decay.  
Rel. at trap  
F.

As above.

A438087

37 100, l; w, 7. Juni \* 157. 7-10 10 P.M. this was released, a Mills College Bird, <sup>at Q. 3. 5/17/33</sup> and became a suitor at the Q. 3. Caught 5/20/33 and liberated at trap I, it returned through strange country and was recaptured at the Q. 3. 5/22/33 <sup>Q-Release</sup> 5/24/33 at trap I again.

Trapped today:

~~A438091 W 2.11.11 1:10 PM A liberated  
Killed by another ♂, when used as a prey;  
this bird put on another ♂ (see p. 576) 5/4/35 at trap I.~~

Yesterday caught the following pair  
in a rabbit box trap, at trap 2:

A438035 h. ♀ ad <sup>trp</sup> 2 } There was a  
A438011 h ♂ 2 }





# Lophortyx c. californica 545

Cracked egg in the trap with  
them. Released at 2 today

No	Color	Age	Sex	Wt.	Time	Trap	Remarks
A438068	w	ad	♂	186.5	6:30 P.M.	3	no mites.
A438050	y	ad	♀	242.6	"	3	"

heaviest bird I ever  
saw; must be full of eggs.

439329	y	ad	♂	185.1	"	3	no mites
A438074	y	im	♀	208.9	7 P.M.	2	(last leg colored band) no mites
A438081	rt+n, l; n, n	ad	♀	195.7	"	2	- had been

released at the Q.D.!

The following were released the next morning;  
smaller weight, in parentheses, is  
morning wt.

529443	n	ad	♀	222.0 (203.9)	10:10 P.M.	3	Didn't load for mites +
A438070	n	ad	♂	185.9 (163.4)	"	3	+
A409364	w	im	♂	166.3 (160.5)	10:30	2	Recaptured 5/24/33 at trap 1 again; released there. +
A438085	lt+w, l; n, n	im	♀	160.6 (152.7)	"	2	A former mello bird +
529450	h	im	♂	190.1 (181.2)	"	2	+
A438075	y	im	♂	186.2 (177.3)	"	2	(bagg was off). +
529445	n	im	♀	224.5 (210.1)	"	2	+
A438027	h	im	♂	189.7 (183.6)	10:30	1	+
A438076	y	im	♀	216.0 (201.5)	"	1	+
A409315		im	♂	187.1 (179.9)	11 P.M.	1	killed 8mm A438091 +
A438086	rt+h, l; w, n	im	♀	165.0 (154.4)	"		B a mello bird which was liberated at Q.D. 5/8/33, recaptured 5/20/33 and released at trap 1. +
A438078	h	im	♂	186.2 (178.9)	11 P.M.	B	3 leaved trap I, 5/20/33! +



# Lophortyx c. californica 546

<u>A 438043</u>	y	♀ im	183.4 (175.7)	11:20 P.M.	5	+
<u>A 438058</u>	nty	♂ im	201.7 (193.3)	"	5	+
<u>A 438061</u>	nty	♂ im	188.0 (181.8)	11:30	4	+
<u>A 438062</u>	nty	♀ im	214.9 (201.0)	"	4	+

May 24, 1932

The following three liberated at trap 1 to get them away from the Q.D.:

A 438089 h+u, l; w, r ♀ im <sup>then</sup> A Mills College

A 438090 h+y, l; r, r. ♀ ad <sup>Decay</sup> then A Mills decay

A 438087 h+r, l; w, r. ♂ <sup>a Q.D. visitor attracted by them</sup>

and kept with them several days. This was a Mills bird too, formerly released (as given a few [page 544] pages back) at trap 1).

Trapped again today:

529440 (red color removed) M ♀ im <sup>188.6</sup> ~~207.8~~ 5 P.M. 2 <sup>Didn't look like mine.</sup>

<sup>a new bird</sup> A 438091 h+y ♂ im <sup>154.6</sup> ~~153.8~~ " B A Santa's ♂ at the Q.D. Quite there, from counting, I suppose. Liberated at trap 1.

A 438079 W ♀ im <sup>209.8</sup> ~~207.0~~ 5:15 P.M. 1 <sup>band was off.</sup>

A 438048 y ♀ ad <sup>214.1</sup> " 5 <sup>band was off</sup>

A 438092 h+y ♂ im <sup>153.6</sup> " B <sup>a Santa's</sup> at Q.D.; released at trap 1.



# Lophortyx c. californica 547

{ A438069 l+y ♀ ad 203.24 6:30 P.M.  
 { A438067 r+y ♂ im 184.5 4 "

The following were kept over night;  
 released early the next morning:

<u>529444</u>	r	♀ im 181.6	1	9:30 A.M.	c band was off
<u>A438085</u>	l+r, l; r, r.	♀ im 158.7	1	"	a milled c band lost
<u>529438</u>	r	♂ ad 199.6	1	"	"
<u>A438068</u>	w	♂ ad 187.2	5	10 P.M.	"
<u>A438050</u>	y	♀ ad 238.9	5	"	"
<u>A438086</u>	l+y e; w	♀ im underest.	2	"	a milled band off
<u>A409317</u>	w	♂ im 193.7	2	"	"
<u>A438081</u>	r+y l; r, r	♀ ad 187.2	2	"	"
<u>A438078</u>	l	♂ im 182.3	2	"	"
<u>A438034</u>	l	♂ im 190.4	2	"	"
<u>A438056</u>	r+y	♀ im 217.4	4	10:30	"
<u>A438080</u>	r+y	♀ ad 233.6	4	"	"
<u>A438052</u>	w+y	♀ im 213.3	4	"	"
<u>A409281</u>	l+y	♂ ad 196.0	4	"	"
<u>A438065</u>	r+y	♂ im 197.4	4	"	one c band gone
<u>A438070</u>	r	♂ ad 174.5	3	11 P.M.	"
<u>529450</u>	l	♂ im 180.8	3	"	"
<u>529443</u>	r	♀ ad 202.9	3	"	about half the secondaries

of the night wing, and some of their  
 lower wing. A slightly  
 abraded (skin broken) but not really  
 wounded or cut area as big as one's  
 little finger nail on back just behind  
 where the folded wing comes. Don't  
 see how the bug could have  
 done this, or a figure - I mean the  
 pulling out of the wing feathers.

pinned  
 pinned





None of the injuries  
is at all serious

[529445] 7

Lin 205.3 3 11 PM.

There seems to be a certain amount of gregariousness among the birds even yet - probably among the as yet unpaired birds - for this evening I scared up 6 or 8 from around one trap. Possibly, of course, it may be simply that the various independent pairs are attracted to the same food supply. My getting several pairs in one trap, so many times, as indicated above, indicates this same condition.

When a mated bird is calling its partner, and cannot find her (or him), the *cu ca cow* is noticeably different, at least at times, in its tone and emphasis. Last year (see ante) I noted this in a ♂ whose mate was shot. This evening I noted it in a ♂ whose mate I suddenly had trapped and not yet liberated. He kept repeating his *cu ca cow* over and



*Lophortyx c. californica*

over at frequent intervals, but it was not repetition so much as the tone and emphasis which made the call distinctive. It was louder than usual, with a certain ringing quality (not muffled or subdued), and the last syllable was more emphatic than the first two: *cú cá cóu, cú cá cóu*. The whole effect was one of real distress, and the atmosphere, with sun setting, night falling fast, and this anxious call, was one of decided pathos, just as last year.

May 25, 1933. Raining, or at least raining, is in full swing inside the Q. I can't understand quite what is going on. One, and I think two, of the Q. I. birds are quarreling frequently. I saw one do it and he was the bandless (celluloid band lost) one - which only a day or two ago was not mated. There is much squinting in the dry leaves at the E. side of the Q. I., and squawking and clucking, indicating fighting, and the chasing of one ♂ by the other, but I



*Loxia c. californica* 550

haven't had time to study the Q.D. activities closely, recently.

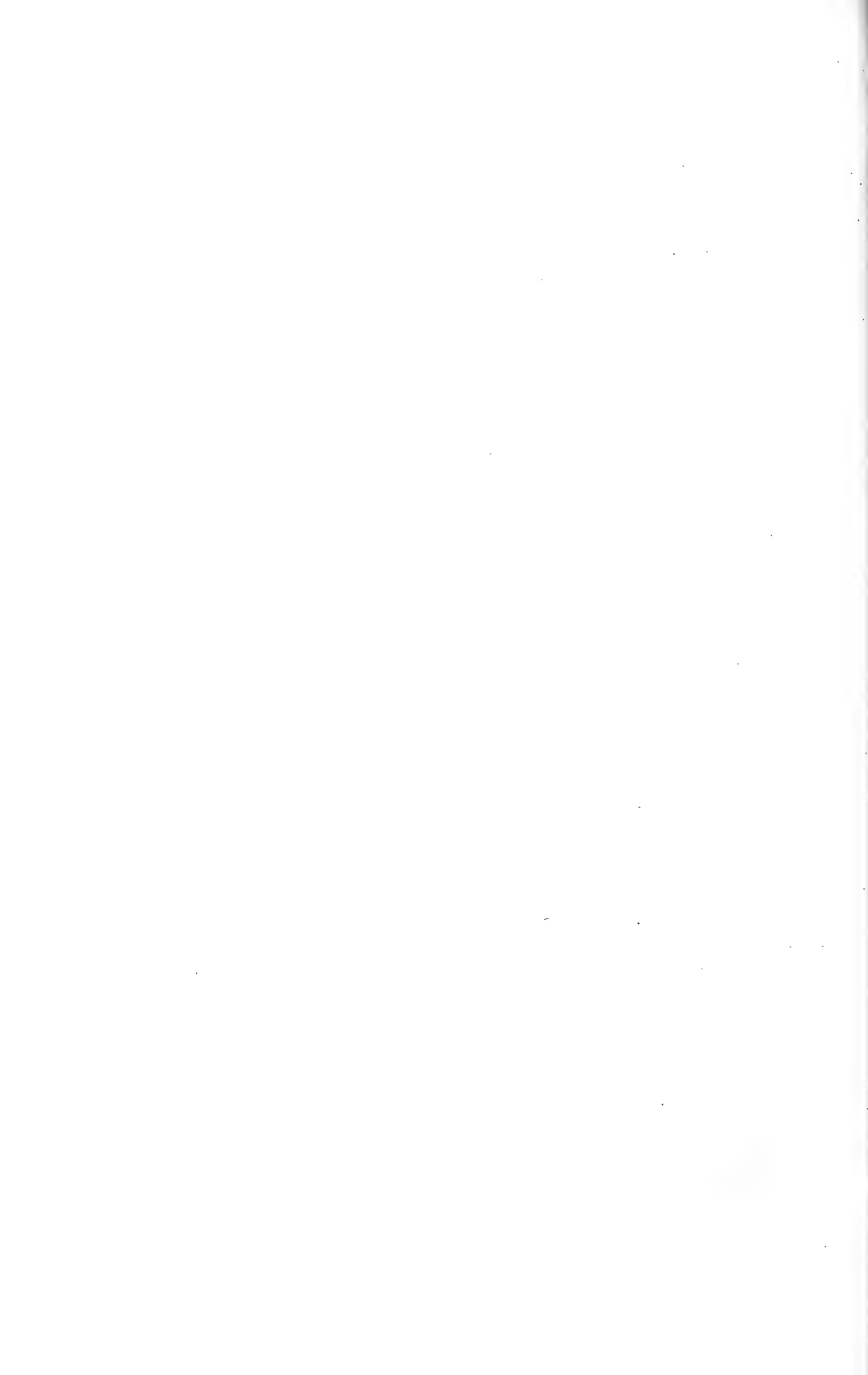
May 28, 1933.

3:15 A.M. Heard some low pit-pits from the Q.D. birds; dawn is at present represented by only a faint lightening.

3:42. One of the Q.D. birds commenced to call quah, as quavering birds usually do at dawn. His delivery is somewhat out of the ordinary, however, for at frequent intervals (about every 3d - 4th quah) he inserts an extra quah, about one second after the regular one, which gives the impression of great excitement: quah! <sup>5 sec.</sup> quah! <sup>5 sec.</sup> quah! <sup>1 sec.</sup> quah!  
quah! <sup>5 sec.</sup> quah! <sup>5 sec.</sup> quah! <sup>1 sec.</sup> quah!  
5 sec. 5 sec. ↑

On May 19 a Mills College student found two baby quail, a few days old, on the tennis court at Mills.

May 31, 1933 The Q.D. quail plitt plitted loudly, and some of them flew out of the brush into the open when a pair of domestic



*Lophortyx c. californica* 551

mallards waddled through the underbrush on the e. side of the Q.I. Unfamiliar animals excite fear, no matter what their actual status, it seems.

First Q.I. <sup>gavail</sup> went to roost (a pair) at 7:35 P.M.; others at 7:38 1/2 P.M.

June 2, 1933. I will now give a summary of such pairing activities as within the Q.I. as I was able to see:

May 17 - B ♂ and R ♀-paired; stay always together, pay no attention to the others

R ♂ - Courted some Mills deers in an adjacent cage all day, kept close to Q.I. ♀ by at the evening feeding time. Drove another ♀ (!) away from her, running at it and giving a little peck, as ♂s do to ♀s.

The others (Y ♀ found later to be dead) - Y ♂ B + W ♀, W ♂ - as yet feed at random, unpaired.





*Lophortyx c. californicus* 552

May 18 - R♂ unpaired, fed alone, counted  
Mills clearys all day.  
Others not seen, did not feed  
in the open.

May 19 R♂ as above  
W♂ alone; others not seen

May 20 Two ♂s fight (see p 542)

May 21 R♂ unpaired  
Y♂ ..

May 31 Y♂ and h+w ♀ paired,  
feed and move about together.  
W♂ and h+Y♀ as the above  
B♂ (paired with R♀, see  
above), feeds alone; note  
must be sitting.

R♂ unpaired.

June 1 B♂ feeds alone; note must  
be sitting

The others as above.

Today (June 2) I caught one of the  
pairs and put it into the north  
water experiment pen. This pen  
has no water but a good growth  
of grass, *Pennis*, *Baccharis*, and  
others. Data on the pair as follows:

{ A409308 W un ♂ 150.0 (1:45 P.M.) <sup>Decidedly</sup>  
{ A409307 h+y un ♀ 185.0 .. <sup>thru</sup> <sup>Courteous</sup>  
Belly not bare no notes present around area good.



*Lophortyx c. californica* 553.

These two are, of course, sides from last years Red pair.

Just how mates are chosen I have not been able to ascertain. Apparently the ♀ is rather passive, although (as shown by last years Y (or was it B?) ♀, she may ignore a would-be mate and rush over to some other loudly proclaiming suitor. It seems certain that certain ♂s drive others away from the ♀s, so that the most consistently victorious ♂s may be the winners.

The fact that some of the Q. J. ♂s (the W (formerly "banders") ♂ for example) gave the quar call before they were finally mated is puzzling. I have

been puzzled in this same way by certain outside ♂s, apparently suitors from the way they pranced about on the top wires, which also gave the quar note — yet most of these suitors, and all of last years, have not given this call; see also (ante) Don Mc Lewis. After two birds are mated, they pay no more attention to other mating birds, except that the ♂ may

not puzzling  
any more  
(1934)



*Lophortyx c. californicus* 554

Drive other ♂s out of the way if they approach too closely.

Ethel saw a covey of very small young - possibly tern - among some vines near the Science Building today.

June 3, 1933.

Caught the rest of the Q.D. quail:

paired; unpaired { B♂ (439330) ad. 170.7 4 P.M. no mites. crop partly full.

{ P♀ (439321) ad. 187.5 .. crop not very full. Belly nearly bare of feathers, arms enlarged, as though egg laying. No mites

The Y♀ (409296) paired dead - evidently for some time. This was the droopy, sick one which always hung back during the winter months (see notes). Possibly coccidiosis due to over crowding was the cause.

paired; singles { Y♂ (A409292) im (142.0 - had been 36 hrs in trap as decoy) 6 P.M. No mites

{ L+H♀ (A409301) im 175.0 .. No mites  
Newly paired; belly not bare.





*Lophortyx c. californica*

555

R♂ (438322) ad 157.8 6P.M. - no mates  
unpaired.

Also caught various sister ♂s and  
others at trap B:

[A438091] L+Y im ♂ - Caught June 1 but  
used as decoy; liberated today, at trap  
I. [Had been caught 5/24/53 at Q.D. and  
released same day trap I]

[A438087] L+Y, L; W, R ♂ im 166.5 6P.M. (Mills  
bird; released at trap I [had been taken  
to trap I twice before (see notes)].

paired { [A438078] ♂ im 178.2  
[A438086] ♀ im 154.9; used as decoy prev-  
causely

The above two birds are both from  
Mills. Both have been released at trap  
I several times but have always  
returned to the Q.D. Since this is  
the second time they have been caught  
together, they must undoubtedly be  
paired - possibly they were paired  
at Mills, indeed. I released them at  
the Q.D., where caught, this time.

Here follows data on what was  
evidently a disease outbreak among



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the quail around the Scenic Building  
at Mills College, Oakland:

March 20, 1933 - Ethel found a sick

1. quail standing hunched up in a  
shady corner near the Scenic Bldg.  
It was too feeble to escape and died  
about 20 minutes after being  
found. Sent to Hohnauer, <sup>Pathologist</sup> of  
the Hooper Foundation, San Fran-  
cisco (see his letter March 24, 1933);  
he was unable to find "evidence of  
any disease as yet known <sup>on</sup> to quail."

2. April 28, 1933 - During "Clean Up Day"  
Mills Students working around  
the Scenic Bldg. found remains  
(saved) of four quail (♂, ♀, 2 sex  
unidentifiable) which had evidently  
died several months before,  
since the bones and feathers  
were scattered and without flesh  
adhering in several cases.

3. <sup>April 28, 1933</sup> About four weeks ago Dr. Jameson,  
head of Zoology Dept. of Mills, saw  
a dead quail lying on the path  
near the Scenic Bldg.

4. <sup>April 28, 1933</sup> About 5 weeks ago a Mills College



gardeners saw a dead quail halfway between the Science Bldg. and Wetmore Gate.

5. About April 28 - another gardener said that he saw two small boys with a quail which they said they had picked up nearly dead on a path near the Science Bldg. They may have stolen a quail from one of the traps there, but this is doubtful.

This is a total of 7, or probably 8 birds found. 6 that trapped for me found <sup>one</sup> birds around the Science Bldg, and these were sent to Haberman. But to date he has not been able to discover any disease condition among them. Of course ~~the~~ unfortunately we did not discover the outbreak, and start trapping, until it was probably all over with.

June 3 - Mills College, Oakland, Calif.

A ♀ quail with bare abdomen - evidently a sitting bird - was picked up near a path in a crippled condition. It was unable to coordinate, could not stand up, or fly. It was fat and



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in good condition except for a large <sup>bruise</sup> on the back, in the region of the <sup>some of the feathers, and a</sup> ~~syssarium~~ <sup>piece of skin, unincorporated</sup>. Evidently the bird had struck a wire or other similar object. It could hardly have lived more than a few hours, so I killed and preserved it.

June 4. Today I liberated:

♀ A438093, b, a Mills bird with bare abdomen (evidently a laying bird), inside the main Q.S., to serve as mate for the R♂ there.

June 13 (when I first came back). The above Mills bird and the R♂ feeding together as though paired.

Is it significant that none of my <sup>recently</sup> paired Q.S. birds has said "quar orje"? Of course they are, some of them, in new, possibly not attractive pens, which may influence their behavior. The birds in the new pens spend quite a bit of time running back and forth trying to get out - although as a matter of fact they can see out very little, thanks to the boards around the base.





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June 14, 1933 - There is some quarring in this region, but less than ten days ago. The height of the season seems to have passed.

Returns  
of a sort

Discovered the following three birds dead in one of my rabbit box traps:

Dead [ A438011 ♂ ad. } these two were paired  
A438035 ♀ ad } (see earlier records)  
A438050 ♀ ad

It is not always possible to distinguish the cu ca cu call of the ♀ from that of the ♂, with certainty. ♀ A409307 was heard several times to give the call in tones which one might have taken for those of a rather high-voiced ♂. As usual under these circumstances, her mate, <sup>standing a few feet away,</sup> interrupted with an emphatic squill, squill! each time she called. The P. is paired with the ~~P.~~ new (Mills) B. all right; I see them always together.

P. I. birds went to roost at 7:45 P.M. this evening. This is about ten minutes earlier than the



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average for this time of year, I think.

June 15, 1933. Quail, far and near, commenced to call quail, and chuck, at 4:05 A.M.

The <sup>S.</sup> Q.D. w ♂ (mentioned as quarrying earlier) quarried 3 times today, several times yesterday. He is, of course, mated.

June 20, 1933 Not much quarrying these days, only a small amount even in the early (4-5:30) A.M. No young seen as yet. Possibly the quail call is given to announce territory just after the ♂ has procured a mate; it evidently dies out <sup>some time</sup> before hatching, however.

James Ralph III brought me  
returns → a dead ♀ quail - no. A438056.  
She was found <sup>on June 15</sup> in the orchard  
by Ralph's house; had probably  
collided with a fence as no  
marks <sup>of predators</sup> could be found on her  
desiccated body. Of course disease  
might have been the cause.

3 P.M. Rather a cool day on account  
of recent fog (see weather notes); nevertheless  
the B (Mills) ♀ was panting today  
moderately hard while feeding with



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the R♂ in the sun. The R♂ was not panting; he took a dust bath.

The two Thrashers inside the Q.D. did not pant either.

Q. S. quail went to roost at 7:50 P.M.

June 21, 1933 - The W♂ in the S. Q. S. still quaws occasionally.

June 23 - Fullerton the forester man here, tells me that approximately one week ago he saw a pair with very small young. I have had no opportunity at all to hunt for nests this year. All quawing, except an occasional cry perhaps once each day, has stopped.

June 26 - 4:40 A.M. Towhees and other birds giving their maternal calls. It has been light for 15 minutes at least (I mean light enough for birds to be up) yet only now have some of the quail flown down from their roosts - it was the S. Q. S. pair - both ♂ + ♀.

June 27 - E. saw the W♀ and her 6♂ with either (probably 8 or 9 or 10 very small young today at 2 P.M. ! Part of the young were with





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Feb 2

the ♀, part with the ♂. The day has been exceptionally cold and foggy and windy (see weather notes).

The other pair E. saw also; they had no young (Mills ♀ + RB ♂).

Like the ♀ ♂ chased one of the Q.D. thrashers all about - the first time the chase was in the tall grass and lasted nearly a minute the grass tops waving wildly all about where they ran, and some squeaking coming from the thrashers.

On the Skyline Boulevard about due west of Woodside (San Mateo Co.), where the fog pours over the ridge nearly every night, even when no fog appears at other points on the ridge, and where the redwoods are a dominant tree, I saw a pair of quail by the roadside. A few houses are scattered through the forest, and probably some of the west-facing, sunny slopes have pastures here and there, most of the country is precipitous, wet,



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and heavily wooded, however,  
being redwoods, tan oak, madrone,  
fig (?) etc.

Caught a quail at trap B:

A438025 | h 200.0 7:30 P.M. ♀ ad.

The abdomen was bare of feathers.  
Ethel said that about 8 other <sup>ad. small</sup> quail  
flew away from the trap as she  
approached.

June 28, 1933 - Saw two pairs of  
quail in about the same place  
on the Sigurne Boulevard as yester-  
day.

3 P.M. E. saw the ♂♂ doing  
sentry duty on a baccharis bush.

3:30 P.M. ♂♂ now with young  
at edge of tall grass; ♀ not visible.

June 29

2:15 P.M. E. saw the ♂ ♀ and ♂♂ with  
9 young feeding in the J. F. P.

3:10 P.M.

3:30 P.M.

3:55 P.M.

} Same as above

4:20 The ♂♂ out feeding alone; the  
absence of his mate (h ♀) indicates  
that she may be sitting. He just  
made a dash at one of the Q. I.  
thrashers, which may be an additional



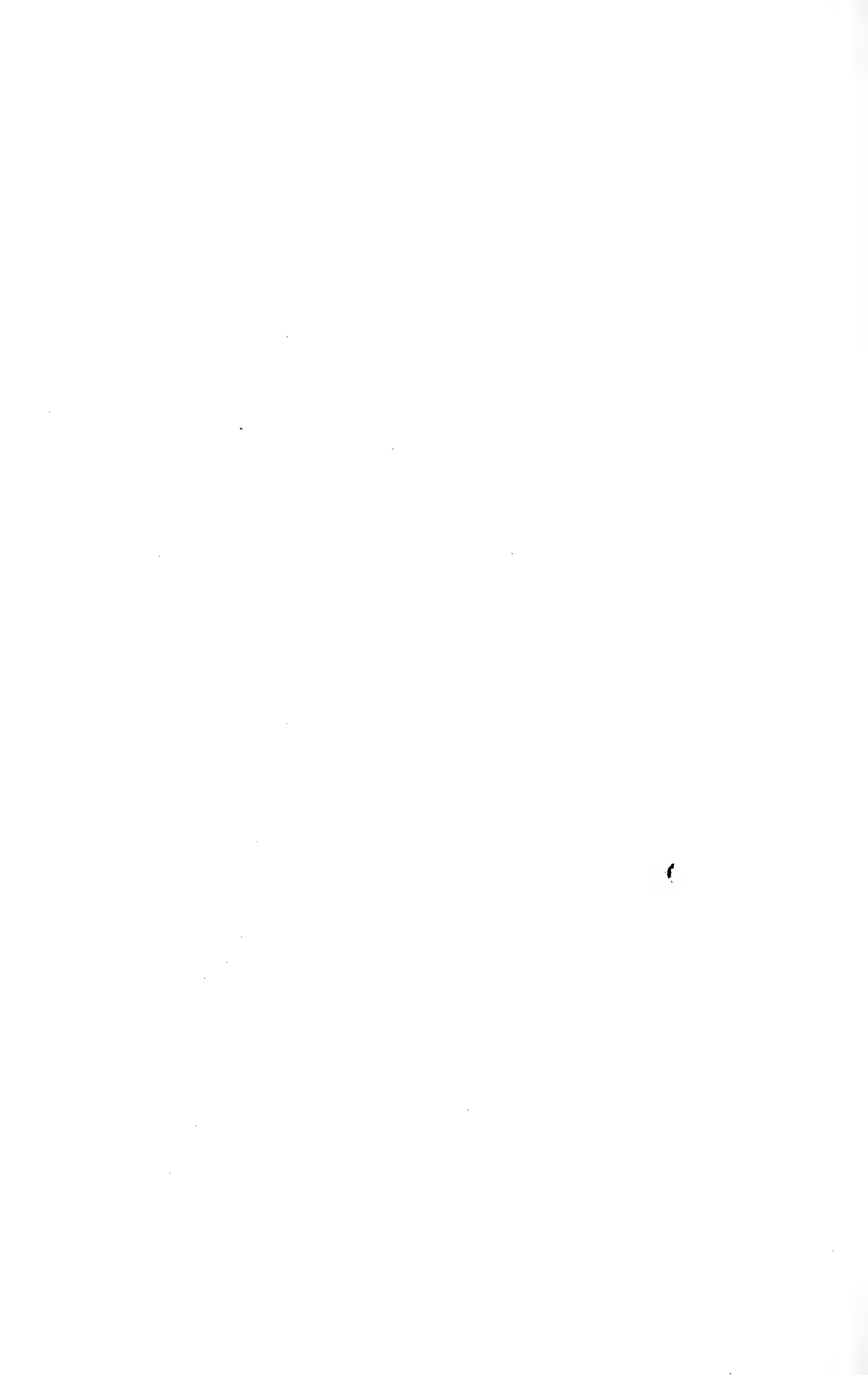
indications of nesting

4:40 P.m.

~~At 4:40 P.m. the P. and B. flew out of the brush together with much peck-pecking and alighted in the S. F. P. The P. began to walk about, shake himself, and feed, while the B. flew up to a pair of tall brush and remained there, peck-pecking, suddenly or suddenly.~~

This sort of behavior is characteristic of a pair when the P. is sitting and is joined by the B. at feeding time.

The P. ate <sup>steadily</sup> for a long time, and presently was joined by the B. who did not eat, however, but simply stood by her, "on guard" looking about. After eating, the P. dusted and preened, the B. remaining on guard. All of this behavior indicates nesting. While she fed a B. that has been hanging about for three weeks or more — seemingly unpaired, or else with polygamous tendencies (~~that~~ he gives frequently) — I walked out on the top, quite above the pair. At this the P. looked up and yelled *cú cá caw, cú cá caw*



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very fast and loud, as alligerant  
B's do. After a while the B ♀  
walked into the tall grass, the R ♂ followed,  
and the suitor(?) ♂ disappeared in the  
opposite direction. The immediate  
acceptance of the R ♂ by the B (Mills) ♀,  
who had been removed from Mills  
while ~~sett~~ incubating (inforced, as antea)  
and plunged down in a strange en-  
vironment, is surprising.

5 P.M. Now the R ♂ is out alone,  
and instead of doing sentry duty  
is eating freely. The ♀ must have  
gone back to the nest.

June 30 - R ♂, B ♀ out feeding at 7:30 A.M.,  
the ♂ chased a thrasher, as usual.

July 1, 1933

7 A.M. B ♀ eating, R ♂ on guard. The ♀  
is eating, among other things, tiny (1/4" high)  
sprouting alfalfa plants which I had  
sown. B ♂ doing sentry duty on  
a baccharis bush.

9 A.M. R ♀, B ♂, and 9 young out  
feeding

10:30 A.M. as above.

11 A.M. R ♂ out feeding alone. The B ♀  
must be sitting.





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11:30 A.M. R♀, B♂<sup>new</sup> and young out again.  
The young are <sup>now</sup> more surefooted than on  
~~the day~~ ~~they~~ were hatched. On that day they stumbled  
over everything clod.

11:45 A.M. Fairly out as above.

1 P.M. Ditto

1:30 P.M. again

2 P.M.

2:30 P.M. "

3 P.M. "

The male stands on  
a clod doing sentry duty and clucking  
softly to the young, who sometimes  
wander 10 feet away while feeding,  
but usually not more than that.

4 P.M. Fairly out again. The young  
seem to eat tiny newly sprouted plants  
(alfalfa?).

7:30 P.M. R♂ again out feeding alone.

July 2 R♀, B♂ and young out. First ♂,  
then ♀ took a short dust bath, both  
using the same pit.

July 3 9:30 A.M. R♂ again feeding alone.  
Family of young and adults out,  
also.

At the junction of the Los Brancos Rd.  
with the main road I saw, in the  
recently cut hay field on the s. side



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of the main road, a covey of about  
8  $\frac{1}{4}$  grown young with adults fly  
from the stubble into cover.

Trapped today; the data follows on the  
next page (568)



July 3, 1933 -

Number	Color	Sex	Age	Trap	Weight	Hour	Remarks
<u>439329</u>	Y	♂	ad.	1	188.7	3:15 pm	
<u>529446</u>	R	♂	ad.	1	189	3:15 pm	colored band lost; replaced
<u>529437</u>	R	♀	ad	1	✓ 176	3:15 pm	
A. 438094	—	—	im juv	1	40.8	"	can fly
A438095	—	—	im "	1	41.3	"	
A438096	—	—	im "	1	44.0	"	
A438097	—	—	im "	1	32.0	"	
A438098	—	—	im "	1	43.2	"	
<u>529438</u>	M	♂	ad	1	194.7	7:10 P.M.	
(1) <u>A438085</u>	M, 7, 14 (Mills)			im	191.4	"	fully partly (very) partly done
<u>A409315</u>		♂	im 2		195.1	"	

Dead  
♂ A409292  
♀ A409301

July 4, 1933 Today I found the North (small) Q. J. pair of quail dead. The ♂ had been dead three or four days, tho' only about 1 or two days (not yet maggot-infested). Near by in a little hollow beneath a Baccharis bush, were seven eggs. I do not know whether these birds died because of the lack of water or because of ~~the~~ a diseased condition (possibly coccidiosis, from which earlier Q. J. deaths this winter are probably to be attributed; see ante). The fact that none of the other quail - all of which have been

↓ Turns out to be lack of food, apparently. See below.





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cytharwater — as well as the thrasher family (see *Psosoma* p. 19) has been seen to suffer from lack of water or even pant much, in spite of a careful daily water, indicates that disease may have caused the death of these two birds. <sup>the</sup> Future fate of the survivors will indicate which of these possibilities was the actual one. All three quail pens received approximately equal shade.

Trapped today

{ A438081 r + r, l; r, r ad 154.2 3:30 P.M. I a mile  
Bird. Has abdomen bare!

{ A409317 w ♂ im 187.6 3:30 P.M. I  
Several small young left vicinity of the trap as I approached.

{ A409320 w ♀ ad 200.4 3:30 P.M. II

{ A438085 r, r; b + w, l. ♀ im. 185.0 gr. 7:30 pm. I  
Abdomen only slightly bare, if any.

{ 529436 r ♂ ad. 189.0 gr. 7:30 pm I

{ A438074 y ♀ im 197.0 gr " II

July 5-

E. trapped all afternoon but got no quail, although she saw many, including a covey of about 10, 1/3 grown young, with adults,



on the road about 150 feet uphill past the quarry. They were able to fly.

8 A.M. She saw the B♀ and R♂ together feeding.

8:30 Saw the pair in the S.Q.D. They appeared entirely healthy, although restless, as usual.

9:15 A.M. Saw the B♂ and young

9:30 B♂, R♀ and young out!

At 4:10 A.M. I heard the first pit-pits of some outside quail which I am quite sure had not yet flown down from their roosts. Pambies etc. were just commencing their maternal calls at the time.

July 6.

8:30 A.M. quail in S.Q.D. still apparently healthy.

B♀, R♂, out feeding; ♀ eats greedily as though she had been sitting for a long time; R♂ ate but little. ♀ flapped her wings <sup>on 5 different occasions</sup> as though stretching after a long spell of sitting, took two dust baths, scratched her head, preened her tail feathers, stretched wing and foot simul-



tanuously (wing + foot of a side together,  
as gallinaceous birds do)  
8:40 A.M. R♂ flew into tall Baccharis  
bush and did sentry duty, scratching  
and preening occasionally and looking  
around; then flew back to the ♀ who was  
still feeding. A short time later he  
flew to the Baccharis bush again;  
the ♀ finished eating and walked off  
into the grass, doubtless to her nest,  
while he was still at his post. A  
few minutes later the ♂ flew  
down to the ♀, P.P. and walked  
rapidly into the grass at the point  
where the ♀ had disappeared.

10: A.M. R♀, h♂, young out.

7:40 P.M. R♂ out alone.

July 7

7: A.M. Foggy morning. Grass noticeably  
with ~~the~~ <sup>with</sup> drops on blades.  
act. R♂ out eating alone.

R♀, B♂ with 9 young out eating;  
their wing feathers are visible to the  
naked eye at 10 feet.

8:30 Fog gone; sun already bright  
and warm; grass dry in sunny  
places, damp in shade.

9:45 A.M. R♂ eating alone again.



12:45 P.M. B ♀, R ♂ seen disappearing  
into long grass at same place as yesterday.  
R ♀, B ♂, and young out eating.

Pullerton, Forestry man at Ralphs, said  
he saw one bunch of young quail, heard  
another, along main road through the  
ranch, vicinity of the barley field.

Notes continued on next page (573)





*Lophortyx*  
*c. californica*

573

July 7.

Number	Color	Age	Sex	Wt.	Hour	Trap	Remarks
[A438086]	w, r, b, l	im	♀	150.0	3:30 P.M.	B	Bunch of small young ran off as I approached.
[A438078]	b, r	im	♂	186.5	"	B	Phasmatids have been trapped together several times before.
[A438085]	r, r; b, w, l	im	♀	187.3	5 P.M.	1	This one is at last staying put (see notes)
[329437]	r, l	ad	♀	174.0	5 P.M.	3	
A438099	—	juv.	—	53.0	"	3	
A438100	—	"	—	42.0	"	3	
[A438069]	b, r, l	ad	♀	189.0	7:15 P.M.	B	adorned with new feathers.
[A438092]	b, r, l	im	♂	166.0	"	B	coming in.
A438101	w	im	♂	177.1	7:45 P.M.	1	
[329444]	r	im	♀	160.2	"	2	

July 8, 1933

8 A.M. Both quail in S. Q. T. apparently still healthy

10 A.M. R♀, B♂ and young healthy

10:30 A.M. R♂ feeding alone

1 P.M. R♀, B♂, young, out feeding

The young can now fly a little - about 6" off the ground and 20 or 30 ft at a time. They do out of sheer good spirits, not to overcome phasmatodes.

5 P.M. R♂, B♀ out feeding together, behaving as previously described.

R♀, B♂, young, out also.



Trapped; got only two birds, these being repeats from <sup>yesterday</sup>  
A 438101 ♂, trap 1. Not weighed. A number  
of young scampered away as I approached.

529444 ♀ trap 2

7 P.M. R♂ out feeding alone again.

July 9 - All the Q. ♀ and S. Q. ♀. quail  
(except B♀; probably sitting) seen today  
and all seemed healthy.

Trapped:

529438 r.l. ad ♂ 192.3 7:15 P.M. 1

July 10 - All of young and their parents, both  
S. Q. ♀ birds OK; R♂, B♀ not seen  
(but I was present only a few  
minutes).

See *Oxostoma*, p. 22. for my finding of  
the two thrashers (July 9), which I had  
liberated in the N. Q. ♀; dead. I think  
food shortage rather than water shortage  
has killed the pair birds (2 quail, see notes).

Today I released a spotted towhee in there.  
July 11 - Very hot (see weather notes;  
max 114.5!). Young, parents, and other  
pair O.K.; towhee in N. Q. ♀ still  
alive; none seen panting.

This morning about 7:30 A.M.  
I heard a ♂ quarring for quite a



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long time. Possibly he was a bird which had either secured a mate late (doubtful) or whose nesting cycle, interrupted, was recommencing.

July 12 - Trapped

No.	Color	Sex	Age	Wt.	Wing	Trap	Remarks
A438102	-	-	juv	38.0	7.45	1	without than parents
A438103	-	-	juv	43.0	"	1	
A438104	-	-	juv	43.7	"	1	

[529445]	m	♀	im	209.1	"	3
[529450]	b	♂	im	187.6	"	3

4:15 P.M. All the quail still appear healthy

July 13 - Towhee in N.Q.D. still alive.

July 15 - 7:30 A.M. - Towhee in N.Q.D. dead.

Must be a food shortage in that pen (I can find but few seeds), not water.

Other pens with occupants healthy.

A young spotted and a young brown towhee put into the N.Q.D.; a considerable quantity of scratch feed also put in. This should test whether the birds die of starvation or not. Scratch feed will be kept constantly before them. (They did <sup>not</sup> die)

Trapped again today; no quail. This makes a total of three days <sup>during</sup> the last <sub>10</sub> during which we have got no





quail at all (first day that E. ran the traps, <sup>2</sup> once about 6 days ago, <sup>3</sup> today). Even on the other days we have got very few quail. This indicates that the birds are well scattered out over the surrounding territory. It also indicates that they do not forage widely at this time, when the young are small.

<sup>distance</sup> James Ralph III showed me today, from a low bush beneath which a quail is incubating. He was standing right beside it, watering with garden hose <sup>adjacent</sup> a clump of similar bushes, and started to water this bush also. Suddenly the ♀ shot out from beneath it and away, her head all wet from the spray. Jim looked in, saw about 16 eggs, yolk wet, left. I must look at it presently, when she gets over her fright.

10 A.M. All Quail in all Q.S.s healthy still

1:45 P.M. B♂ doing sentry duty, head and shoulders in sun, rest of body in shade, panting hard and continuously.

3:20 R♂ and B♀ feeding together. This is the second time (first time at 10 A.M.) the B♀ has been off



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the nest (if she has one) today.

6 p.m. young quail leave the ground as  
much as  $2\frac{1}{2}$  ft. when flying.

p.

Next turn to page 578



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578

July 16, 1933

Trapped:

Number	Color	Sex	Weight	Age	Trip	Time	Remarks
A438076	Y, l	♀	181.3	Im.	II	5:30 pm	
A409315	Y+W, l	♂	192.1	2m.	"	"	

A438047 Y, l ♂ 182.1 Im. B 6 pm

A438083 R, n; R+R, l ♂ Ad V 8:10 pm

A Mindogo bird (?) →

Released without weighing because there was not enough time before dark (nearly dark at 8:10 pm)

July 19 9 young, B♂, R♀, R♂, quad in S.Q.D., at least one turkey, o.k.

Went hunting quail today. At the quarry - saw a bunch of 4 ads and about 18 young all in one bunch. The young were about 1/4 - 1/5 grown (very weight, see specimen, below), and took wing readily, flying in scattered formations to cover 75 - 100 feet away, accompanied by their parents. Got one ♂ parent, also one young which had alighted in the top of a baccharis bush instead of in deep cover at the end of its flight.



Going up to Mc Lellan's pasture, I found about 4 families of quail in ~~an~~ a strip of snow-berry - wild rose - wild currant - wild blackberry - poison oak tangle 300 yds. long, fringing the pasture. One family was deep in the brush, merely pit-pitted as I went by, refused to come out. Another flushed by ones and twos only after I straggled into their retreat and looked them out. The young in this family seemed to be more than half grown. In the other two families the adults showed more boldness - a boldness, indeed, which is shown only during the reproductive season. In both cases both sexes took to the trees and tall brush, pit-pitting loudly and continually. I got one, after which some flew 100 ft. away into dense brush, and all subsided. In the late afternoon, returning to this place, I secured one of the pairs again. The ♂ flew to a blackberry tangle 200 ft. away





and pit-plitted; the ♀, more bold (for once, see ante) burst out of the brush, fluttered down into the middle of the dusty stock trail and giving the peeping cry made by badly frightened quail, fluttered and struggled in the dust as though badly wounded. This is the first time that I have seen a quail do this.

I saw a cooper hawk in the pasture, very possibly the same one seen during last winter. The presence of the hawk, and of other predators, may possibly explain the absence of quail from many parts of Mc Lellans pasture where one would think they would do well. The predators may prevent the quail from multiplying to the extent that they could invade new territory. I have mentioned this absence of quail from favorable parts of Mc Lellans' pasture during last winter and this absence exists during the summer as well, in other



*Lophortyx c. californicus* 581

wards night through the year.  
Data on the quail shot:

<sup>juv</sup> ~~juv~~ wt 74.6 6:30 P.M. quavoy.  
♂ im 185.7 "  
♀ im 168.7 7 P.M. McCallans "  
♂ ad 180.9 9:30 A.M. "

The ♂ ad. just mentioned was molting heavily; the others not examined.

July 20, 1933. The R♂ and B (Mills) ♀ have young, about 12-13 of them, actions as usual for young. All the other quail (young and ads) in all the pens, also the turkeys, O.K.

Photos of:

- ✓ (1) Roosting tree in <sup>R.P.</sup> barley field
- ✓ (2) Ideal nesting sites in Los Trancos Barley field

The young mentioned just above seem to have been hatched yesterday, judging from their size.

July 22, 1933 All quail, also turkeys, O.K.

When the two families of young passed near each other today, the R♀ mingled to some extent with the young of the other pair (B♀, R♂), at which the R♂ rushed at her and



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chased her several feet, pecking at her so that she (his last year's wife) cried out peep peep several times.

Shot another quavary bird:

juv. ♀ 82.5; 7:45 P.M. The combined coveys were near water when I first saw them, and I fired once, missing my bird. For about five minutes all was still, but then, with darkness falling, and the water as yet unvisited, the birds "came to life" again with the celerity which they usually display only when alarmed late in the day like this. I could hear the peep-peep-peep of a myriads of juvenile voices, mingling with the occasional plot-plot of adults from the shadowy undergrowth. Approaching on tip toe I surprised the whole lot at a bubble of water emanating from the cattle trough. As they flew up, some of the young, with characteristic juvenile simplicity, alighted on branches within plain sight; and I got the one mentioned above.





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Series (in quarry) July 19, this quarry covey has apparently lived within a radius of 75 yards. Probably they have stayed in this spot for considerably longer than this; possibly since the young were hatched. I used to see a pair of adults here some weeks before this, too.



Similarly, there are three coveys of young in McEllen's pasture which, since I began hunting there July 19, I have been able to locate every day, within 100 ft of the same place in each case, often has

July 23, 1933 One of the second (small) bunch of Q.D. young must be a washing. Several times Ethel saw him stand hunched up with eyes shut while the rest of the family



*Lophortyx c. californica* 584

procession moved on and left him 10 feet or more in the rear. Always he would at last come to and run after the others, but not vigorously.

I shot one of the young of this family to see what its stomach contents were. When it fell over weakly flapping its little featherless wings. (but silent) the parents (not shot) <sup>alarmed by my shot</sup> pit pit pit, came to within a few inches of it and stared. While they were staring some of the (1/6 grown) young of the older brood came past and immediately the ♀ parent of the younger brood - (B♀) turned and twice chased these interloping young furiously away, even, in one case, flying a few feet into the air after one which, finding dodging ineffectual, had taken wing. Immediately after this outbreak of maternal concern, however, the B♀ returned to the spot where her young one lay dead and fed for some moments within three inches of him without



showing, either then or subsequently, any ~~more~~ concern, or even awareness, of his demise. The ♂ parent, also, showed no further concern.

Date on the youngster: 7.9 gr. at 4:30 P.M. Crop contained alfalfa leaf fragments, many seeds of grass.

Heard a bird calling "quar" from somewhere near the ♀, ♂, several times this morning, this being the first time since I last mentioned this circumstance.

Mr. Beale (M. V. Z.) tells me that this summer, while he was with Grinnell in northern California collecting, he scared up a mountain quail, and although he missed it entirely (as dissection proved), yet it fell to the earth dazed and paralyzed so that he was able to go over and pick it up. Upon skinning it, Grinnell found a large blood clot on the top of its head. Evidently the frightened bird had rocketed into a branch or other obstruction in its flight—illustrating the perils of headlong,





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July 26, 1933. The nice large young in the  
P.D. died this evening.

Early this morning, and also the  
preceding morning, a scoter (?) ♂  
walked about for a short time on  
top the Q. 9, and quarred several times

One of the small Q. D. young got out today, and evidently spent much time running up and down outside the Q. D., peeping for when I found him he was very feeble, with eyes shut part of the time, and running about almost comatously, sprawling over the tiniest obstructions. Ethel fed him milk water, revived him, turned him loose inside the Q. D. again.

July 27. All the quail and the turkeys still  
O.K., however, the absence of water  
seems to have resulted in an in-  
ordinate consumption of tender young  
green stuff. The new alfalfa <sup>leaves</sup> are pulled  
down to the basal part of the  
petioles, and this morning I noticed  
the eldest brood of young clustered  
around a large milk thistle (~~Mamm~~  
*Silybum marianum*) which they





*Lophortyx californicus* 587

were eating voraciously. Many of the (somewhat tough) basal leaves of this 6 ft plant were nearly entirely eaten up except for the tough petioles, others looked like lace curtains.

The young run about a little sluggishly with heads drawn in, I think, too, and they fly but little. I think the drought is commencing to affect them. Last night was the warmest I have ever perceived here; slept without a sheet all night long and was too hot even then.

Correlated with this hot night I think, was the fact that the Q. Q. young, both sets, were abroad at 5 A.M. (it was already warm), instead of at 9 A.M., as on cloudy mornings.

Yesterday I shot five quail along the rd. between the Alpine Ranch and the Skyline Blvd. turns off to Halfmoon Bay. Data as follows:

{ ♂ ad. 154.2 9 A.M. at Quarry  
+ im 153.7 " " "

These are <sup>two</sup> of the 4 or more parents of the quarry flock. I had previously shot another, ad ♂, from this flock.



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nothing thing in all. Can't be much more than one ad ♀ left to care for them.

♀ ad. no all throat shot off). S. hyaline blood.

♂ im 171.2 4:15 P.M.

♂ ad 167.0 "

These birds, all with young, allowed me to approach in some cases as close as 25 ft.

July 28, 1933 - 5 A.M. Dawn. Heard a quail say cu ca cow and another (the sister just outside the Q.D.) say quaw. A few seconds later heard <sup>and saw</sup> two different Q.D. quail fly down from their roosts.

5:05 (ab). The 9 large Q.D. young at cluster as yesterday A.M., behaved as yesterday.

July 29, 1933

Only one of the brood of small young left, and it is noticeably weak. The brood of nine older ones show their need of water by pecking at the bases of growing corn plants, in one instance eight of them crowding around a single corn plant at one time. They have not only ripped the lower leaves of the Q.D. thistles but they climb up two or three feet into the (6 ft high) plants, and make large curtains out of the leaves at that height also.

Thinking to remove the one small



Baby, I put a small water pan into the Q.S. One half hour later the R ♂ came to pass by the pan. Startled, he sidled away from it, creased his neck, then walked up and commenced to drink. While drinking he called (clucked) the others to him; the B ♀ came running, took 16 sips; the small young straggled along too, but the adults left the water just as he arrived, so that he got none. Changing my plans, I removed the water dish.

Discovered a gap in the Q.S. screening through, which the small youngster had got outside and then, unable to find the gap again, was wandering about peeping plaintively for his parents. Put him back in and mended the gap. About two days ago this same thing happened and the youngster (not necessarily the same one I nearly did from running up and down in the heat, had to be removed with milk and water — illustrating the delicate nature of baby quail. [The disappearance of the other eight young could hardly have been via the gap, must have





been from throat (or "coccidiosis") for there were no dead bodies observable in the ~~surrounding~~ <sup>area</sup> available to any which might have remained on the other side of the gap].

Cramped today:

Number	Color	Sex	Age	Weight	Trap	Time	Remarks
A409281	B+Y, l	♂	ad.	177.3	IV	5 pm	There were three other juveniles in trap at same time which had been killed through screening by Cooper Hawk
A438105	R+Y, l	—	juv.	76.0	"	"	

[529443] <sup>\*</sup> l ad ♀ 164.8 5 7 P.M.  
 [A438070] <sup>\*</sup> l ad ♂ 182.3 5 "

all in same trap

A438106	w	juv.	—	1	"
A438107	w	juv ♂	—	1	"
A438108	w	juv ♀	—	1	"
A438109	w	juv ♀	—	1	"
A438110	w	juv ♂	—	1	"
A438111		juv ♂	—	1	"
[529437]		ad ♀	175.6	1	"
A438112		juv ♂	—	1	"
[A438104]		juv ♂	99.9	1	"
A438113		" ♀?		1	"
A438114		juv ♂		1	"
A438115		" ♀		1	"
[529440]	R, l	ad ♂		1	"
[A438094]	w	juv ♀		1	"
[A438095]	w	juv ♀		1	"
A438116	w	juv ♀		1	"
A438117	w	"		1	"
A438118	w	juv ♂		1	"
A438119	w	juv ♀		1	"
A438120	w	juv ♂		1	"
[A438103]	w	juv ♀?		1	"



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439329 y	ad ♂	-	1	8 P.M.
A438081	imm ad ♀	-	1	"
A438317 w	ad ♂	-	1	"
A438124 w	juv ♀	1		"
A438125 w	juv ♀	1		"
A438126 w	juv ♀	1		"
A438127 w	juv ♀	1		"
A438128 w	" ♂?	1		"
A438100 w	" ♂	1		"
A438121 w	" ♀?	1		"
A438122 w	" ♂	1		"
<del>A438042</del>				
A438123 w	" ♀	1		"
A438042 b.l	ad ♂	1		"
A438047	y.l. im ♂	5		7:30 P.M.

young quail, in groups of 15-30 are in evidence all over the ranch, that is in the quail-inhabited areas of it. They fly strongly, being about same general size as the above trapped young.

Collected 5 flat flies as they flew away from the young mentioned as landed above. These are the first I have ever taken from quail.



Discovered one of the Q.D. immature  
thrashers dead. The lack of water almost un-  
doubtedly was the cause of its death. The

Pool, also at least one young, still alive.  
July 30th color sex wt B 7 P.M.

A438129 - juv - - - " "  
A438130 - " - - - " "  
A438131 - " - - - " "

A438086 w, b, l im ♀ 158.6 " "

A438132 - juv - - - " "  
A438133 - " - - - " "  
A438134 - " - - - " "

A438058 m+y ad ♂ 205.3 3 "

A438135 juv ♂ 3 "  
A438136 " ♂

529445 m, l im ♀ 178.4 3 "

A438137 juv ♂ 3 "  
A438138 juv ♂ 3 "  
A438139 juv ♀ 3 "  
A438140 juv ♀ 3 "



A 438141

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juv ♂ wt. 3 7: P.M.

A 438142

juv ♂ 3 "

A 438143

juv ♀ 3 "

A 438144

" ♀ 3 "

A 438046 y

im ♂ 197.5 3 " (only <sup>ad. 3</sup> ~~one~~)im counts left on <sup>each</sup> ~~one~~ wing

A 438145

juv ♂? 3 "

A 438034 <sup>band</sup> gone

im ♂ 196.7 3 " only ad.

4 im. counts left on each wing

A 438146

juv ♀ 3 "

A 438147

" ♀ 3 "

A 438068 no colored band

ad ♂

192.7

I 7:45 pm.

A 438070 R, L

ad ♂

187.3

II 7:45 pm.

438148

juv. ♀

III 7:45 pm.

July 31, 1933 - Touches, all ad. quail, and the upstart now - surviving young O.K.; weather cooler (see weather notes). I leave on vacation trip.

Sept 2, 1933. I return from vacation trip. Moved of mammals. Without a drop of free water, the touches, the S. Q. D. pair of ad. quail, and at least 19 of the quail in





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including R.B.R.R. 594

the main Q.D. are still alive. The turkeys have had abundant food, both green and also seeds. The S.Q.D. pairs of ad. quail still have a heavy stand of green alfalfa. The quail in the main Q.D. have <sup>had</sup> a less choice supply of greens, however. The tall thistles are now mere skeletons of coarse midribs and branching stems (however, they have fruited abundantly); a host of sun-flower plants (possibly 20) have sprung up, some of them 5 feet tall, and these have suffered a fate similar to that of the thistles. The quail perch in the very tops of them as well as on the leaves along the stems, and have eaten away a large proportion of all green leaf surface within reach (terminal portions of drooping leaves are inaccessible to these heavy bodied birds). A third turkey, also



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healthy, has got into the <sup>the</sup> Q.D.  
with the quail.

The quail, in their <sup>unnatural</sup> desire for  
succulent greens, have even assaulted  
numerous tall *Xanthium spinosum*  
plants (whose ~~very~~ close set, needle pointed  
spines are a veritable hell), eating the  
leaves, even jumping at them from  
the ground!

See p. 23, *Accipiter cooperii* for  
remarks on activities of this species,  
including the <sup>known</sup> killing of two young  
quail in vicinity of swimming pool.

September 3, 1933


3:30 A.M. B♂ also among the swimmers.

First one, then two young quail alighted  
on top of a sunflower plant, ate greedily,  
their weight bending it nearly to the  
ground. At this an ad. quail came  
up, also jumped onto it, causing  
all three to fall off. The plant sprung



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only partly upright , and soon two of the quail were back on it again, eating. They would tear off and swallow pieces as large as ones thrush rail.

Sept 5, 1933. One sees many coveys of quail, often two sizes in one large covey, around here. Everyone is remarking that this year has been a good one for quail - which is evidently true. See map I. The covey at the Quarry, at which I used to shoot last month, is still there, possibly augmented (see Map II).

Sept 9 - Trapped today -

One caught last night (had been in trap about 24

hrs):

wt hours trap  
mount. Q

Remarks..

943814 9 b+w juv ♀

A438150

b juv ♀

156.2

2:30pm III

again 9/10/33, Z.

A438097

b " ♂

165.0

"

"

{ Put colored band on just now. Had only aluminum one when caught again 9/10/33 Z.

A438107

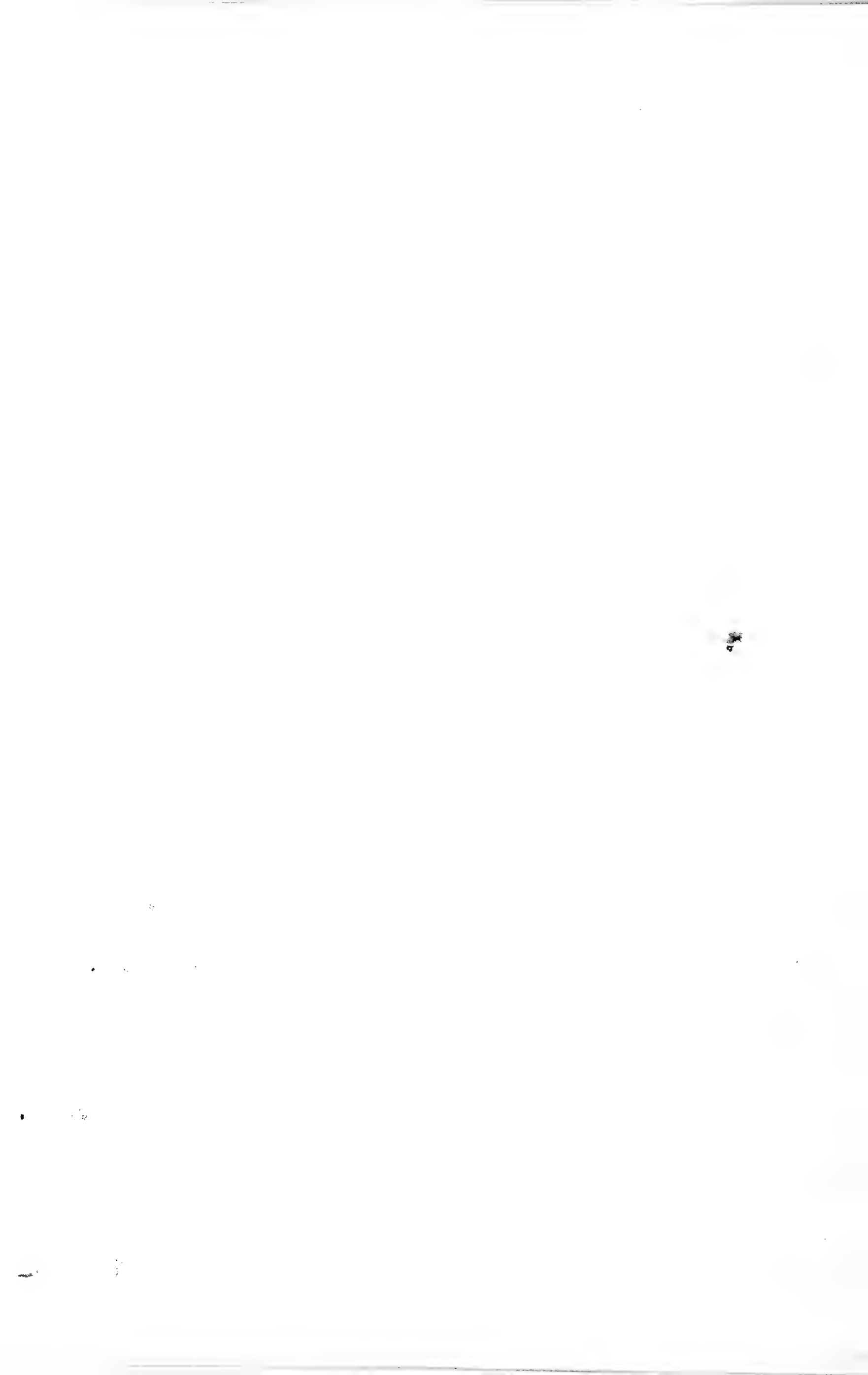
w " "

162.5

"

"

(Continued on next page)





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<u>no.</u>	<u>color</u>	<u>age</u>	<u>Sex</u>	<u>wt.</u>	<u>Hour</u>	<u>Trop</u>	<u>Remarks</u>
A438151	b	juv.	♂	175.5	2:30 pm	III	again 9/10/33, 3
A438099	b	"	"	169.0	"	"	blue band put on just now.
A438120	w	juv	♂	151.2	"	"	
A438113	w	"	♀	153.5	"	"	
A438152	b	"	♂	178.5	"	"	
A438139	b	"	"	150.3	"	"	
A438118	w	"	"	160.0	"	"	
529437	r	ad	♀	176.3	"	"	" Saw flat fly about $\frac{1}{4}$ in. long on this bird. Fly escaped
A438111	b	juv.	♂	170.0	"	"	again 9/10/33, 2.
A438153	b	juv.	♂	165.5	"	"	blue band put on just now
A438154	b	juv.	♀	165.0	"	"	again 9/10/33, 2.
A438124	w	"	"	144.0	"	"	again 9/10/33, 2.
A438125	b	"	♂	154.0	"	"	" "
A438155	b	juv.	♀	162.3	"	"	again 9/10/33, 2.
A438106	b	juv.	♂	167.0	"	"	again 9/10/33, 2.
A438143	b	juv	♀	169.8	"	"	again 9/10/33, 3
A438110	w	juv.	♂	154.7	"	"	again 9/10/33, 2

(continued on next page)



# *Lophortyx c. californica*

<u>no.</u>	<u>color</u>	<u>age</u>	<u>Sex</u>	<u>Wt.</u>	<u>Hour</u>	<u>Trap</u>	<u>Remarks</u>
A438121	b	juv.	♀	162.2	2:30pm	III	Blue band put on just now. only aluminum when caught again 9/10/33, 2
A438095	"	"	"	162.8	"	"	again 9/10/33, 2
A438127	w	juv	♀	162.8	"	"	again 9/10/33, 2
A438103	w	juv	♀	167.8	"	"	
A438100	w	juv	♂	165.5	"	"	again 9/10/33, 2
A438090	b	juv	♂	174.8	"	"	
A438115	b	juv	♀	148.7	"	"	

[Dates in parentheses are those on following morning].

A438156	nty juv	♀	164.2 (158.4)	8:15	4	+
A438157	nty juv	♂	172.3 (164.0)	"	4	+
A438158	nty juv	♀	159.2 (152.3)	"	4	+
A438159	nty juv	♀	164.4 (157.2)	"	4	+
A438160	nty	♂	172.9 (165.3)	"	4	+
A438064	nty ad	♀	175.1 (168.3)	"	4	molting its prim. coverts (last yrs were spotted too).
A438161	nty juv	♀	156.3 (149.4)	"	4	+
A438067	nty ad	♂	182.7 (175.9)	"	4	+
A438162	nty juv	♀	163.8 (157.0)	"	4	+
A438163	nty	♀	162.4 (154.5)	"	4	+
A409281	nty ad	♂	194.5 (186.9)	"	4	+



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Rel. next Q. or	+A 438164	h+w	juv	♀	173.89 (164.9)	P.M. Q.	+
	+A 438165	h+w	juv	♂	172.1 (162.2)	9 P.M. Q.	+
	+A 438166	h+w	juv	♂	183.4 (173.5)	Q.	+
	+A 438167	h+w	ad	♂	178.9 (169.9)	Q.	+
	+A 438168	h+w	juv	♂	163.3 (152.4)	Q.	+
	+A 438169	h+w	"	♂	184.4 (175.4)	Q.	+
	<del>+A 438170</del>	<del>h+w</del>	<del>"</del>	<del>♀</del>	<del>180.6 (170.8)</del>	<del>Q.</del>	<del>+</del>
Rel. next A.M.	+A 438149	h+w	"	♀	150.3 (141.3)	Q (596)	+
	+A 438171	h+w	"	♀	173.6 (165.5)	Q.	+
	A 438172	h+y	juv	♀	—	9:30 P.M. B (may)	+
Rel. next A.M.	A 438173	h+y	"	♀	—	" B (")	+
	A 438174	h+y	"	♀	—	" B (")	+
	A 438175	h+y	"	♂	—	" B (")	+

→ These four quail, incredible though it may seem, were roosting, well about 8 others, in a (seemingly) compact bunch on the ground in the open barley field near the Q.D. The barley field is covered with nothing but a dense, continuous stand of *Hemizonia congesta*. I first saw them while driving the Ford down the field about 9 P.M.; the birds did not fly, but their running could be traced by the waving of the dense herbage. Jumping out of the car and pursuing them with the flashlight, I caught the four by hand, the dense, viscid



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taxes were happening them in their efforts to take wing; the others eventually succeeded in launching into the air. I cannot guess the cause of this extraordinary choice of a roosting site. Of course the Benning area was seeing abundantly providing a fine evening meal, and also provided dense cover. A Cooper hawk (see below) had been in the vicinity this evening, and may have frightened them so that they dared not go to roost, but this is by no means certain.

A438176 b+y juv ♂ ————— 9:30 P.M. B <sup>in the trap.</sup>

+ A438034 b ad ♂ 197.2 9:45 P.M. 1 +  
(185.9)

(celluloid band off)

+ A438135 b juv ♂ 189.7 " 1 +  
(182.7)

(~~cell. band off~~)

- A438141 b juv ♂ 153.7 " 1 again +  
(147.9) 9/10/33, 3.

A438146 b juv ♂ ————— " 1

A438177 w " ♂ ————— " 1 9/10/33, 3.

A438178 w juv ♀ ————— " 1

A438148 b juv ♀ ————— " 1

A438136 b " ♀ ————— " 1 again, 9/10/33, 3

+ 529443 m ad ♀ 168.0 5 +  
(157.2)

A438179 — juv ♂? ————— 5

+ A438070 m ad ♂ 184.5 5 +  
(176.9)

A438180 — juv — ————— 5

A438181 juv — ————— 5

A438182 — " — ————— 5

One more <sup>juv.</sup> killed by Cooper hawk (saved).

A409317 w ad ♂ 195.9 3 +  
(187.0)

Sept 10, 1933 - Trapped today

A438183 m juv? ♀ 165.9 6 P.M. 2

A438094 w juv (22) ♀ 155.3 <sup>the distalmost prim. covered each wing, unspotted</sup> 6 P.M. 2

A438184 m juv ♀ " 2

Released next A.M.

Rel. next A.M.





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A438<sup>185</sup>~~097~~ ♂ juv ♀ — 6 P.M. 2  
 See also return annotations, this date, on  
 many of yesterday's birds.

A438104 w juv ♂ 165.1 6 P.M. 2

439329 y ad ♂ 190.6 " 2

A438119 w juv ♀ — " 2

A438096 h. juv ♂ — " 2

A438186 h+y juv ♂ — 6:30 4

A438187 h+y " ♀ — " 4

A438188 h+y " ♂ — " 4

A438189 h+y " ♀ — " 4

A438190 h+y " ♂ — " 4

A438041 h+y ad ♀ ✓ 170.4 " 4

A438191 h+y juv ♂ — " 4

A438192 h+y " ♀ — " 4

note a bird  
 dead  
 (not banded)

A409363 al. bands off ad ♂ 197.2 " 4

A438061 h+y ad ♂ 189.9 " 4  
 also 1 dead smothered

A438138 h juv ♂ — " 3

A438123 w juv ♀ — " 3

A438193 h juv ♀ — " 3

A438137 h juv ♂ — " 3

529445 ♂ ad ♀ ✓ 173.8 " 3

A438108 w juv ♂ — " 3

A438142 h " ♂ — 1

A438109 w " ♂ — 1

A438194 w " ♀ — also 1 dead smothered

A438086 w; b, l ad ♀ 161.8 5

note a bird  
 dead  
 (banded)



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m	color	age	sex	wt	hrs. trap	remarks
A438195	b+y, l	juv	♂?	—	7 P.M.	B
A438172	b+y, l	juv	♀?	—	"	"
A438175	"	"	♂?	—	"	"
A438173	"	"	♂?	—	"	"
A438174	"	juv	♀?	—	"	"
A438176	"	"	♂?	—	"	"

Sept 12 - Caught former juv ♀ A438170 in unbaited trap Q., killed her for stomach content collection. The band removed; will be placed on next bird banded (see below), struck from previous record. Wt 180.6 (from previous record).

Sept 13. Took photos of: ① the barley field, showing roosting trees in background, tarweed (*Therapsid congesta*) - covered flats in foreground where quail roosted (Sept 9, 1933).  
see notes.

② the quail-stripped sunflowers in the Q.D. (see about Sept. 2 for mention).

8 Trapped today: Snakes

A438175	b+y	juv	♂	—	3:30 P.M.	B
A438170 (see above)	b+y	"	♂	—	"	B
A438083	n, n, m, n, l	ad	♂	195.9	"	B
A438196	b+y	juv	—	—	"	B
A438195	b+y	"	♂	—	"	B



<u>A438174</u>	h+y	juv	—	—	3:30 P.M.	B
A438197	h+y	♂	—	—	"	B
<u>A438172</u>	h+y	"	—	—	"	B
A438198	h+y	♀?	117.3	"	"	B
a sample of int. of this batch of young						
A438199	h+y	♀?	—	—	"	B
<u>A438173</u>	h+y	♂	—	—	"	B
<u>A438047</u>	y	ad ♂	177.6	"	"	B
<u>A438048</u>	y	ad ♀	170.1	"	"	B
A438200	<del>h+y</del> <sup>juv</sup>	juv ♂	—	—	"	B
A438201	h+y	juv ♂	—	—	"	B
A438202	h+y	♂	—	—	"	B
<u>A438176</u>	h+y	♂	—	—	"	B
A438204	h	juv ♀	—	—	4 P.M.	2
<u>A409315</u>	<sup>(y was gone)</sup> w+y	ad ♂	188.0	"	"	2
A438205	<del>h+y</del>	juv ♀	—	—	"	2
A438206	h	♀	—	—	"	2
A438207	h	♀?	—	—	"	2
A438208	h	♂	—	—	"	2
<u>A438157</u>	h+y	♂	—	—	4:15	4
<u>A438160</u>	h+y	♂	—	—	"	4
<u>A438161</u>	h+y	♂	—	—	"	4
<u>A438158</u>	h+y	♂	—	—	"	4
A438209	h+y	♂	—	—	"	4
A438210	h	♀	—	—	"	4
<u>529443</u>	h	ad ♀	169.1	6:30 P.M.	"	B
<u>A438180</u>	—	juv	—	—	"	B
<u>A438181</u>	—	"	—	—	"	B

A438203? →





[A438191]	h+y juv ♂	—	6:45 P.M.	4
[A438190]	h+y " ♂	—	"	4
[A438186]	h+y " ♂	—	"	4
[A438061]	h+y ad ♂	189.1	"	4
[A409281]	h+y ad ♂	185.0	"	4
A438211	h+y juv ♂	—	"	4
[A438192]	h+y " ♀	—	"	4
[A438188]	h+y " ♂	—	"	4
[A438189]	h+y " ♀	—	"	4
A438212	— " —	—	"	4

↓ Released next A.M. ↓

[A438213]	h juv ♂	9:30 P.M.	2
A438214	h " ♂	—	2
A438215	h " ♂	—	2
A438216	h " ♂	139.9	2
A438217	h " ♂	128.8	2

also 2 more young, killed by a Cooper hawk, in the trap.

[A438075]	y ad ♂	183.1	1:30 P.M.	2
-----------	--------	-------	-----------	---

Top of head all raw, with feathers gone, and skin too (but not skull showing), due to presence of hawk. Crop very much distended with grain.

[A438141]	h juv ♂	—	9:45 P.M.	3
[A438151]	h " ♂	—	9:45 P.M.	3
[A438136]	h " ♀	—	"	3
[A438140]	h " ♀	—	"	3
[A438177]	w " ♂	—	"	3



*Lophortyx c. californica* 605

[A438145]	juv ♂	—	9:45 p.m.	3	
[A438137]	" ♂	—	"	3	
A438218	" ♂	—	"	3	
[A438139]	" ♂	—	"	3	
[A438142]	" ♂	—	"	3	
[A438148]	" ♀	—	"	3	
[A438034]	ad ♂	197.8	"	3	+
[A438168]	h+w juv ♂	148.4	10 p.m.	Q	+
[A438054]	7+y ad ♂	195.8	"	Q	+
[A438068]	w (juv) ad ♂	194.7	"	1	+
[A438108]	w juv ♂	—	"	1	
[A438070]	n ad ♂	—	"	B	

Took 3 more quail from trap Q (which was unbaited, except with decay), for stomachs:

Imm ♀ 167.0 4-6 p.m.

Imm ♀ 176.0 4-6 p.m.

Imm ♀ 171.3 4-6 p.m.

The two birds killed by the cooper hawk (p 604):

juv ♀ 143.0 5 p.m.

— — — " (head + crop eaten).

See Pirnie, p. 364, Nineteenth American Game Conference Transactions for note on the behavior of chickadees, nuthatches, ducks, which go off searching for less available food after eating a limited amount of



*Lophortyx c. californicus* 606

food which has been supplied artificially. Either they crave variety, or instinct impels them to keep moving even when there is no need — like kids at a party where tables are covered with food; they eat a little here and more there, but do not sit down and systematically exhaust any single supply. Quails do this too, where grain has been scattered on the ground.

Regarding cooer haunt activities and other factors of quail mortality: It is at this time of year when large numbers of inexperienced young are newly abroad that such factors operate most intensively. As with James W. Webb's wild geese, the first few weeks (months with geese) are the hardest. The less active and the less wary are taken in large numbers, and only by winter does the diminished flock become the well disciplined, alert unit which can escape hawks and other predators.

Sept 19, 1933. Alp C. R., 6:30 P. M. Early dusk.





*Lophortyx c. californicus* 607

I surprised <sup>2</sup> ~~a pair~~ of quail which were feeding at the weedy margin of the county road just outside of Ralphs upper outside gate (by the "steam shovel"). I have never seen quail here before, although 400 yds away I have seen a covey several times.

Quail did not nest at the little knoll marked ● ●, Map II, during 1933, although conditions were just the same as in 1932 when ~~they~~ <sup>several pairs</sup> did nest there. I know they didn't nest there this year because I trapped for a long time there and never saw a quail or heard one, or even had the bait eaten. This is one more instance of quail not using all of their potential range. Instead of using last year's territory, quail nested somewhere near the road about 300 yds from last year's place (also designated on Map II). From there they have clattered up toward the quarry, where, with other family groups, they now farm the





# 608

## Lophortyx c. californicus

Q flock (see trapping records).

Sept 20 - Cooper hawk got into trap 1, killed.

return of a  
sant.

A438108

also, had

A438218

previously eaten  
, evidently caught  
outside the trap some time  
previously. See *Accipiter cooperii*  
p. 25.

Trapped today

A438119 w juv ♀

— 5:15 P.M. / 9/21/33, L;

A438107 w " ♂

— " / 9/21/33, L;

A438100 w " ♂

— " / - 9/21/33, L;

A438126 w " ♀

— " / - 9/21/33, L;

A438112 w " ♂

— " / - 9/21/33, L;

A438150 h " ♀

— " / - 9/21/33, L;

A438097 h " ♂

— " /

A438219 w " ♂

— " /

A438068 w ad ♂

— 197.3. / - 9/21/33, L;

A438121 h juv ♀

— " / - 9/21/33, L;

529437 r ad ♀

181.4 " / - 9/21/33, L;

A438127 w juv ♀

— " / - 9/21/33, L;

A438154 h " ♀

— " /

A438094 w " ♀

— " /

A438155 h " ♀

— " /

A438117 w (lost) " ♀

— " /

A438095 h " ♀

— " / 9/21/33

A438111 h " ♂

— " / - 9/21/33,



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[A438185]	n	juv ♀	—	5:15 P.M.	1
[A438105]	n+y	" ♀	—	5:30 P.M.	4
[A438163]	n+y	" ♀	—	"	4
[A438209]	n+y	" ♂	—	"	4
A438220	n+y	" ♀	—	"	4
[A438156]	n+y	" ♀	—	"	4
A438221	n+y	" ♂	—	"	4
[A438157]	n+y	" ♂	—	"	4
[A438162]	n+y	" ♀	—	"	4
[A438158]	n+y	" ♀	—	"	4
[A438201]	h+y	" ♂	—	B <sup>9/21/33</sup> <sub>B</sub>	
[A438203]	h+y	" ♂	—	B <sup>9/21/33</sup> <sub>B</sub>	
[A438083]	n, n; n+y	ad ♂	✓ 206.9	B <sup>9/21/33</sup> <sub>B</sub>	
[A438170]	h+y	juv ♂	—	B <sup>9/21/33</sup> <sub>B</sub>	
[A438047]	y	ad ♂	✓ 180.9	B <sup>9/21/33</sup> <sub>B</sub>	
[A438048]	y	ad ♀	✓ 179.6	B <sup>9/21/33</sup> <sub>B</sub>	
[A438173]	h+y	juv ♂	—	B <sup>9/21/33</sup> <sub>B</sub>	
A438222	h+y	" ♀	—	B <sup>9/21/33</sup> <sub>B</sub>	
A438223	h+y	" ♂	—	B <sup>9/21/33</sup> <sub>B</sub>	
[A438176]	h+y	" ♂	—	B <sup>9/21/33</sup> <sub>B</sub>	
[A438103]	w	" ♀	—	3	
[A438125]	w	" ♂	—	3	
[A438153]	h	" ♂	—	3	
[A438110]	w	" ♂	—	3	
[A438027]	h	ad ♂	✓ 211.2	3	
[A438123]	w	juv ♀	—	3	
[A438120]	w	" ♂	—	3	



# Lophortyx c. californica 610

[529443]	m	ad ♀	167.9	6:15 P.M.	5
[7438182]	-	juv ♀	unmeasured	"	5
[A438179]	-	" ♂	"	"	5

The following liberates next morning

+ [439329]	y	ad ♂	191.3 <sup>(179.1)</sup>	9:15 P.M.	1	-	+
+ [A438114]	w	juv ♂	186.3 <sup>(176.0)</sup>	"	1		+
+ [529444]	m	ad ♂	209.6 <sup>(197.1)</sup>	"	1		+
+ [A438087]	(w; b; l; ad ♂)	187.4 <sup>(178.9)</sup>	"	1		+	
+ [A438102]	w	juv ♀	163.9 <sup>(154.8)</sup>	"	3		+
+ [A438183]	m	" ♀	178.4 <sup>(167.6)</sup>	"	3 9/24/33		+
+ [A438152]	b	" ♂	187.8 <sup>(178.5)</sup>	"	3		+
+ [A438104]	w	" ♂	179.3 <sup>(167.8)</sup>	"	3		+
+ [A438109]	w	" ♂	170.3 <sup>(161.7)</sup>	"	3		+
+ [A438115]	b	" ♀	170.9 <sup>(160.0)</sup>	"	3		+
+ [A438096]	b	" ♂	180.9 <sup>(169.0)</sup>	"	3		+
+ [A438124]	w <sup>(was lost)</sup>	" ♀	156.9 <sup>(148.2)</sup>	"	3		+
+ [A438118]	w	" ♂	184.9 <sup>(174.0)</sup>	"	3		+
[A438224]	rty	" ♀	—	"	4		+
+ [A409281]	bty	ad ♂	196.2 <sup>(184.3)</sup>	"	4		+
[A438159]	rty	juv ♀	—	"	4		+
+ [A438063]	m	ad ♂	<del>184.9</del> 184.9 <sup>(174.0)</sup>	"	4		+
[A438160]	rty	juv ♂	—	"	4		+
+ [A438038]	rty	ad ♂	196.2 <sup>(184.9)</sup>	"	4		+
[A438161]	rty	juv ♀	—	10 P.M.	+		+
[A438140]	b.	" ♀	—	"	5		+
[A438143]	b	" ♀	—	"	5		+
[A438177]	w	" ♂	—	"	5		+

Has a rattling noise when nothing is though injured

Has a rattling noise when walking, though injured





*Lophantyx c. californica* 611

A438193	h	juv ♀	—	10P.5	
A438148		♀	—	" 5	
529449	mta, e, y, n	ad ♂	—	" 5	
A438070		ad ♂	✓183.6(172.4)	" 5	+
A438180		juv ♀	100.0(92.6)	" 5	+
A438178	w	♀	—	" 5	
A438225		y ad ♀	✓188.2(174.9)	" 5	+

Where did this bird come from ???

A438139	h	juv ♂	—	" 5	
A438151	h	" ♂	—	" 5	
A438129	h+y	" ♂	—	10:30 AM. B	
A438134	h+y	" ♂	—	" B	
A438197	h+y	" ♂	143.8(132.5)	" B 9/21/33	+
A438200	h+y	" ♂	—	" B 9/21/33	
A438226	h+y	" ♀	—	" B	
A438227	h+y	ad ♂	✓184.3(169.2)	" B	

Where did this bird come from ???

A438172	h+y	juv ♀	—	" B 9/21/33	
A438086	w, n; b, r, l	ad ♀	✓167.3(157.0)	" B 9/21/33	+
A438196	h+y	juv ♀	—	" B	
A438198	h+y	" ♀	—	" B 9/21/33	
A438174	h+y	" ♀	—	" B 9/21/33	

Sept 21. Trapped again today: For repeats from yesterday's catch see above.



*Lophontyx c. californicus* 612

A438228	—	juv ♀	—	4 p.m.	4
A438229	—	" ♀	—	"	4
A438212	—	" ♀	—	"	4
A438230	—	" ♀	—	"	4
A438027	h	ad ♂	204.3	"	1
A438144	h	juv ♀	—	"	B
A438135	h	" ♂	—	"	B
A438138	h	" ♂	—	"	B
A438043	y	ad ♀	173.4	"	B
A438058	"y	ad ♂	208.0	"	B
A438146	h	juv ♂	—	"	B
A438136	h	" ♀	—	"	B
A438137	h	" ♂	—	"	B
A438182	—	"	—	"	B
A438141	h	" ♂	—	"	B
A438145	h	" ♂	—	"	B
529443	m	ad ♀	163.0	"	B
A409317	w	ad ♂	198.1	4:45 p.m.	2
A438153	h	juv ♀	—	"	2
A438122	w	" ♂	—	"	2
A438123	w	" ♀	—	"	2
A438103	w	" ♂	—	"	2
A438110	w	" ♂	—	"	2
A438125	w	" ♂	—	"	2
A438179	—	"	—	5:15	B
A438175	h+y	" ♂	—	"	B
A438202	h+y	" ♂	—	"	B
A438034	h	ad ♂	—	"	B



# Lophortyx c. californicus

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<u>A438120</u>	w	juv ♂	—	5:30 AM	2
A438231	—	—	♂	6:15 PM	4
<u>A438034</u>	b	ad ♂	198.9	"	B
<u>A438046</u>	y	ad ♂	217.7	"	5
<u>A438142</u>	b	juv ♂	—	"	5

Retained the next morning: B

+ <u>A409311</u>	n	ad ♀	<sup>(180.1)</sup> 193.6	8:15 PM	3 +
<u>A438030</u>	<sup>(juv #1)</sup> b	ad ♂	<sup>(189.9)</sup> 189.9	"	3 +
A438232	—	juv	—	"	3
+ A438233	—	"	106.7 (91.8)	"	3 +
+ <u>A438065</u>	n+y	ad ♂	<sup>(203.0)</sup> 203.0	"	3 +
+ A438234	—	juv	102.9 (85.9)	"	3 +
+ A438235	—	"	<sup>(108.3)</sup> 108.3	"	3 +
A438236	—	" ♂	—	"	3
A438237	—	"	—	"	3
A438238	—	" ♂	—	"	3
+ <u>A438052</u>	w+y	ad ♀	<sup>(180.6)</sup> 180.6	"	3 +
A438239	—	juv ♀	<sup>(108.1)</sup> —	"	3
A438240	—	" ♀	—	"	3

Many of the juveniles listed above, and also many of the adults, which are also molting, have no top knots, or at best very abbreviated (1/4") ones, in fact I have seen no quail with a fully developed one.

These are among the juvs.





*Lophortyx c. californicus* 614

-trapped, all gradations in size and development from those weighing only about 100 grams to individuals as heavy as the majority of adults. I have weighed a few of each size.

It will be observed that there are two adults new to this region. Also, many of the local adults have not been taken since the nesting season started. This is an indication that there is considerable wandering about at that time, with those birds which nested on the outskirts of the local territory possibly joining coveys of birds in other territories adjacent, as for example A438054, originally from trap 4, but recaptured with the Q covey, which is extra-territorial.

Collected a bird from trap Q:  
July 5<sup>th</sup> 137.9 6:30 P.M. I wing the night a house(?) mouse nibbled at the exposed (by me) crop, ate much of the trap bait in it.





# *Leptontyx c. californica* 615

Sept 30, 1933 Trapped again today

[A438182] ~~juv~~ juv ♀ — 3 P.M. B.

[A438225] y ad ♀ 186.6 " B

A438241 y juv ♂ — 5:45 P.M. 5

[A438222] h+y ad ♀ 200.5 " 5

[A438172] h+y juv ♀ — " 5

[A438198] h+y " ♀ — " 5

[A438175] h+y " ♂ — " 5

[A438227] h+y ad ♂ — " 5

[A438226] h+y " ♀ — " 5

[A438173] h+y " ♂ — " 5

[A438170] h+y " ♂ — " 5

[A438179] — " ♂ — " 5

[A438200] h+y " ♂ — " 5

A438201

very small; different flesh, but he is generally with these birds, I think.

h+y juv ♂ — 5:45 5

[A438223] h+y " ♂ — " 5

[A438174] h+y " ♀ — " 5

[A438177] w " ♀ — 6 P.M. 3

[A438097] w " ♂ — " 3

[A438096] h " ♂ — " 3

[A438110] w " ♂ — " 3

[A438094] w " ♀ — " 3

[A438123] w " ♀ — " 3

[A438155] h " ♀ — " 3

[529446] n ad ♂ 196.9 " 3

[A438150] h juv ♀ — " 3



*Lophortyx c. californica* 616

A438114 W juv ♂ — 6 P.M. 3  
# A438083<sup>3rd</sup> ad ♂ — " 5

The following liberated next A.M.  
A409317 W ad ♂ 192.3 <sup>(86.8) - crop nearly full in</sup> 8:45 P.M. 3 P.M.  
A438135 G juv ♂ 193.3 7 P.M. B

This bird had its tibia broken, by me in taking from trap, at 7 P.M. At 9 P.M. the bird was dead although no internal injuries could be found, and the sole injury visible was the compound-fractured leg, which was swollen considerably and internally (extra muscularly) & suffused with blood. So much for the fragility of birds under some conditions, as opposed to their hardihood under some others. Must have died of shock.

Today I heard calls of the first *Zonotrichia* to arrive (since I was here last week, Sept 23). That means:

- (1) The beginning of the winter-long competition between them and *Lophortyx* for food.
- (2) My quail traps constantly sprung by them.

As yet only a very few are here, and I caught none.



The habit of repairing daily (especially at the evening meal) to feed at certain locations of food abundance, ~~which~~ has been well shown by the quail which I am trapping. Morning and evening, in the past, so long as I replenished the bait at least every three or four days, the quail would clean it up promptly. This last week, however, I have not baited between Sept 23 and Sept 30, and this break in the feeding routine has been enough to break the habit of coming to the traps regularly. I only got 29 birds instead of 60 or more, many traps which in the past have been regularly frequented (especially nos 1 and 4), not being visited at all by quail today. The local coveys ~~have~~ <sup>are</sup> claretless in the near vicinity (heard at close range at no 4) but lost the habit. This shows that to keep them coming I must hence forth bait in the middle of the week too.

The Q.D. quail have shown





*Lophortyx c. californicus* 618

the same feeding habit. Formerly, when fed there, they used to appear regularly in front of the windows to feed. Since I stopped feeding them there last spring, they have never come there to feed any more.

October 7, 1933. Trapped

A438119	w imm	♀	—	2:30 P.M.	2
A438127	w imm	♀	—	"	2
A438117	w "	♀	—	"	2
A438097	w "	♂	—	"	2
A438124	w "	♀	—	"	2
A438183	m "	♀	—	"	2
A438120	w "	♂	—	"	2
A438121	h "	♀	—	"	2
A438155	h "	♀	—	"	2
A438095	h "	♀	—	"	2
A438125	w "	♂	—	"	2
529437	m ad	♀	184.2	"	2
A438126	w imm	♀	—	"	2
A438112	w "	♂	—	"	2
A438087	w, r, b, r, ad	♂	187.0	"	2
A438242	w + h imm	♀	—	2:45 P.M.	Q
A438054	h + y ad	♂	220.5 (11)	"	Q
A438243	w + h imm	♀	"	"	Q
A438189	h + y imm	♀	—	3 P.M.	4
A438244	w + y imm	♂	—	"	4



# color age sex wt time trap

*Lophontyx c. californica* 619

A438191 h+y im ♂ — 3pm 4  
 A438041 h+y ad ♀ 181.8 " 4  
 A438186 h+y im ♂ — " 4  
 A438245 h+y " ♂ — " 4

A438185 r,l juv. ♀ — 5:30pm 3  
 A438111 b,l juv. ♂ — " "  
 A438103 w,l juv. ♀ — " "  
 A438118 w,l juv. ♂ — " "  
 A438102 w,l juv. ♀ — " "  
 A438122 w,l juv. ♂ — " "  
 A438110 w,l juv. ♂ — " "  
 A438115 b,l juv. ♀ — " "  
 A438096 b,l juv. ♂ — " "  
 A438100 w,l juv. ♂ — " "  
 A438027 b,l ad. ♂ 206.0 " "  
 A438129 b+y juv ♂ — 6pm B  
 A438200 b+y " " — " "  
 A438170 b+y " " — " "  
 A438241 y,l " " — " "  
 A438083 ~~h+y~~ r,r h+y,l ad ♂ 198.8 " "  
 A438047 y ad ♂ 192.3 " "  
 A438173 b+y juv. ♂ — " "  
 A438201 b+y " " — " "  
 A438226 b+y juv ♀ — " "  
 A438222 " " — " "  
 A438197 " juv ♂ — " "  
 A438223 " " — " "



# Loxia c. californica 620

col age sex wt hr. Trap Remarks  
 these liberated next A.M.:—

A438143	b	juv <sup>or imm</sup> ♀	—	6:30pm	5	
A438145	b	juv ♂	—	"	"	
+ A438034	b	ad ♂	✓ 200.6 <sup>(192.0)</sup>	"	"	+
A438148	b	juv <sup>or imm</sup> ♀	—	"	"	
A438137	b	" ♂	—	"	"	
+ A438144	b	juv <sup>or imm</sup> ♀	181.4 <sup>(170.9)</sup>	"	"	+
529441	r	ad ♂	✓ 199.8	6:30pm	4	
+ A438213	r	juv <sup>or imm</sup> ♂	✓ 179.1 <sup>(166.6)</sup>	6:30pm	I	
+ A438206	r	juv <sup>or imm</sup> ♀	✓ 159.4 <sup>(150.6)</sup>	"	"	+
A438207	r	" "	✓ 143.2	"	"	
+ A409315	y+w	ad ♂	✓ 196.5 <sup>(187.8)</sup>	"	"	+
- 529440	r	ad ♀	✓ 184.0 <sup>(174.5)</sup>	"	"	+
A438216	r	juv <sup>or imm</sup> ♂	✓ 179.2	"	"	
A438205	r	juv <sup>or imm</sup> ♀	✓ 182.6	"	"	
A438208	r	juv <sup>or imm</sup> ♂	✓ 155.3	"	"	
A438247	b+w	juv <sup>or imm</sup> ♂	—	6:30pm	Q	
A438248	b+w	juv <sup>or imm</sup> ♀	—	"	"	
A438219	w	juv <sup>or imm</sup> ♂	—	5:30pm	II	

Fog last night (see weather notes) made vegetation damp this morning, may have aided the Q.D. birds in their battle against thirst. No thrashers have been seen since the last time they were mentioned (when ever that was; see ab. Aug 20<sup>th</sup>, when we got back from trip). The brown towhee in the N.Q.D., reported as alive when we came back from vacation, has been dead.



*Lophantyx c. californica* 62/a  
 for at least a month, the spotted towhee in  
 the same pen is alive, however. See page  
 621 for continuation of this paragraph.

Numerous flat flies - one flat  
 every 5 or 6 birds - escaped from  
 feathers, flew to the window screens, during  
 banding today.

Oct 7, 1933 Trapped today. (Last week, after  
 mid-week baiting, trapping was  
 again good. Baited Thursday of this  
 week, too.)

A438183	W	im	♀	—	1:30 P.M.	3
A438110	W	"	♂	—	"	3
A438120	W	"	♂	—	"	3
A438155	W	"	♀	—	"	3
A438111	W	"	♂	—	"	3
A438124	W	"	♀	—	"	3
A438150	W	"	♀	—	"	3
A438112	W	"	♂	—	"	3
A438104	W	"	♂	—	"	3
A438125	W	"	♂	—	"	3
A438094	W	"	♀	—	"	3
A438068	W	ad	♂	✓	199.7	"3
A438127	W	im	♀	—	"	3
A438123	W	"	♀	—	"	3
A438109	W	"	♂	—	"	3
A438122	W	"	♂	—	"	3
A438102	W	"	♀	—	"	3
A438118	W	"	♂	—	"	3
A438213	W	"	♂		4 P.M.	2

(cont on p. 622)





*Lophortyx c. californica* 6216

~~first~~ came back from vacation has also been dead some time - at least since Sept 1, I think. The spotted towhees in the same pen still flourish, as do the two quail in the S.Q.D. There are at least 11 birds in the main (entirely waterless) Q.D., since I counted this number twice today. They have picked the sunflower plants down to bare, scraggly, twisted, hard stalks, having eaten the leaves down to the very bases of the thick petioles, and having picked all the ray flowers and bracts from the flower heads. They may be seen any day standing on the twisted, swaying stalks pecking assiduously, but with very little result.

Since all young are now entering their first fall plumage, and since all of last year's immatures are now, by reason of the corresponding molt, adults, there can be no confusing of this year's young with any other generations, and so, in trapping records, I shall henceforth (as partly above) call juvs. immatures.



# Lophantyx c. californica 622

(cont from p. 621 a)

529440	n	ad ♀	✓ 174.1	4 p.m. 2	
A438208	n	im ♂	—	" 2	
A438207	n	" ♀	—	" 2	
A438076	y	ad ♀	✓ 178.9	" 2	
A438206	n	im ♀	—	" 2	
439329	y	ad. ♂	✓ 193.6	5:30 p.m. III	
A438119	w	<del>im.</del> ♀	—	" "	
A438222	y+b	ad. ♀	✓ 193.6	" <del>5:45 p.m.</del> "	
A438200	y+b	<del>im.</del> ♂	—	5:45 p.m. B	
A438047	y	ad ♂	✓ 188.4	6 p.m. 5	
A438241	y	<del>im.</del> ♂	—	" "	
A438175	y+b	<del>im.</del> ♂	—	" "	
A438226	y+b	<del>im.</del> ♀	—	" "	
A438197	y+b	<del>im.</del> ♂	—	" "	
A438129	y+b	<del>im.</del> ♂	—	" "	
A438176	y+b	<del>im.</del> ♂	—	" "	
A438170	y+b	im. ♂	—	" "	
A438202	b	im ♂	—	" "	
A438174	y+b	im ♀	—	" "	
A438223	y+b	im ♂	—	" "	
A438198	y+b	im ♀	—	" "	
A438134	y+b	im ♂	—	" "	
A438173	y+b	im ♂	—	" "	
A438086	w,r;b,l	ad ♀	✓ 170.3 (165.5)	" "	" +
A438216	n	<del>im.</del> ♂	✓ 175.3	6:15 p.m. II	" +
A438246	n	im. ♂	✓ 184.3 (173.9)	" "	" +
A409315	w+y	ad. ♂	✓ 189.0 (179.9)	" "	" +



*Lophortyx c. californica* 623

Oct 19, 1933. Mills College, Oakland. Ethel brought me a ♂ quail, fat, and in fine condition, which someone had found lying dead at Mills.

This bird had not died of disease; it had a full crop (sawed), also a <sup>large</sup> contused area, with a small hole in the center, on the pectoralis muscle. A sharp shot or BB, or cat's tooth (or dog tooth) might have made this hole. There were a few <sup>very</sup> faint contusions on the pectorals of the opposite side, as though the bird might have been squeezed between the jaws of an animal.

Oct 22, 1933. Counted 9 quail inside the Q.D., again. The sunflowers, thistles and other succulent vegetation is gone. They stood about in a small bunch, heads hunched in, feathers puffed out, sick-looking, & ducking and calling to one another restlessly. The birds in the n.q.d., the quail in the S.Q.D., still alive.

Oct 28, 1933 Trapped today:

A438069	♂ + y ad ♀	177.1	3 P.M.	4
A438228	♂ + y im ♀	—	"	4
A438229	♂ + y " ♀	—	"	4





*Zophartha c. californica* 624

Box #	Label	Sex	Weight (g)	Time	Notes
A438134	b+y	im ♂	—	3 p.m.	5
A438196	b+y	" ♀	—	"	5
A438172	b+y	" ♀	—	"	5
A438201	b+y	" ♂	—	"	5
A438241	y	" ♂	—	"	5
A438175	b+y	" ♂	—	"	5
A438176	b+y	" ♂	—	"	5
A438223	b+y	" ♂	—	"	5
A438185	r	2m ♀	—	5:15 pm	III
A438103	w	2m ♀	—	"	"
A409317	w	ad ♂	202.5	"	"
A438152	b	im ♂	—	"	"
A438095	b	im ♀	—	"	"
A438125	w	im ♂	—	"	"
A438111	b	im ♂	—	"	"
A438124	w	im ♀	—	"	"
A438219	w	im ♂	—	"	"
A438083	r+r, b; r, r	ad ♂	195.6	5:45 pm	crop too full for weighing B
A438174	b+y	im ♀	—	5:45 pm	B
A438202	b+y	im ♂	—	5:45 pm	B
A438078	b	ad ♂	203.1	"	(193.5) crop almost 1/3 full, still B
A438170	b+y	im ♂	—	"	"
A438197	b+y	im ♂	—	"	"
A438129	b+y	im ♂	—	"	"
A438198	b+y	im ♀	—	"	"
A438173	b+y	im ♂	—	"	"
A438086	b; l; w, r	ad ♀	173.3	"	(166.7) crop still 2/3 full



no.	color	age	sex	wt.	Time	Trop
A438224	rt+y	im	♀	(182.5) 189.4	6 pm	IV
A438067	rt+y	ad	♂	189.4	crop still 1/3 full (!)	"
A438223	yth	im	♂	189.9	(182.5) crop still 1/3 full	5

The towhee in the N.Q.D. is still alive, as are also the main Q.D. quail - although they look sick, and are probably underweight. The S.Q.D.

birds [nos A409308♂, A409307♀] I found dead today, the ♀ having been dead 3-4 days, the ♂ 2-3. The ♂, at least, was excessively emaciated, with empty crop; the ♀ was too decomposed to ascertain as to this. I could find no seeds in the S.Q.D.; evidently they had eaten them all up, and thus died of malnutrition. There was still plenty of <sup>yellow</sup> sweet clover, which supplied them with green stuff - although it was noticeably eaten away so that nearly every leaf had been bitten. Evidently green stuff alone did not suffice. The eternal efforts of the birds to get through the wire and gain their fellows in the main Q.D., may have contributed to the lowering of their vitality.

See under *Buteo l. calurus*, p.

[P. 626 for  
Q.D. quail  
shot by me]



*Lophortyx c. californica*.

626

143-144 for data on red tails catching  
quail in Southern California.

November 5, 1933. There is evidently a shortage  
of seeds inside of the Q.D., so that the  
birds are forced to subsist on green  
sprouts of ~~new~~ new vegetation, and  
other succulents. Undoubtedly they are  
<sup>weakened</sup> emaciated for this reason, just as  
horses are if they are kept on a  
grass diet without hay, during the  
winter, and just as a man  
would be if fed on not much  
else but lettuce. I shot one of  
the Q.D. birds to ascertain this,  
and confirmed my surmise:

in ♀, wt. 149.9, 10 A.M. Stomach  
full of green plant sprouts etc., grit,  
and one or two seeds, crop the same;  
seeds noticeably absent, bird very  
emaciated (keel like, sharp breast  
bone, weight reduced.

Nov 13, 1933 Donald D. McLean tells me the  
following experiences of his regarding  
quail:

(1). A number of birds have been found  
in the morning by him, and by an acquaintance of  
his, lying dead ~~be~~ beneath the trees





in which the birds had gone to roost the night before. No external marks of violence were discernible, nor were any signs of disease found by Dr. M. Holmner, pathologist of the Div. of Fish and Game. It was noticeable, however, that the crops of all the specimens were much distended, and in some cases actually ruptured, by masses of barley and similar large sized cultivated (recently sowed) grains which the birds had eaten. It is McLean's theory that the birds had died of asphyxiation following upon the swelling up of this mass of unnatural food with the moisture of the birds crop.

(2) McLean has examined large numbers (hundreds) of stomachs of predatory birds and mammals caught by trappers working on State Game Refuges. Only about 7% of bobcats out of about 125 had quail in them; only a few Cooper hawks contained quail, also; coyotes had none (I think he said).

(3) This quail season is an even better one than the last two good years; or, at least, the quail have reached





*Lophortyx c. californica* 628

their maximum numbers this year. Even the quail of the oft-discussed Spring Valley Water Co. lands, are now, at long last, abundant.

(4). Some pairs seem to have raised two broods this year. In one particular case a certain ravine held one isolated pair with a brood of young. Several weeks later the same spot held the same (presumably) pair and the young plus another batch of smaller young. No other adults or young, were to be found in the vicinity.

Nov 11, 1933. See under *Accipiter cooperia*, p. 27-28, for accounts by Chas. J. Hayes, San Bernardino of killing of quail by cooper hawks, red tails, barn owls. Dec 2, 1933. Alp. Ranch, at Q.D. All the Q.D. quail are dead - not from lack of water, I feel quite sure, (at least directly), but rather from a shortage of seed food, as indicated on p. 625. The tombe in the main Q.D. (how he got in I don't know) is still alive. Green stuff is fairly plentiful inside there. Here ends the water experiment,



*Lophortyx c. californica* 629

See p. 28, *Accipiter cooperii*, for two records of Sharpshins (*A. velox*) destroying quail.

See *Bubo v. pacificus*, p. 57, for record of horned owl eating quail.

In a letter dated Dec. 5, 1933, Gordon H. True writes: Bands of <sup>five</sup> ~~several~~ dead quail "were [submitted]... by Mr. W. J. Smith.... [who] kept no records, but remembers that one of the birds broke its neck on a wire fence and two were killed by owls, the other two 'just died'."

In a letter dated Dec 9, True writes: "Mr. Ralph Larue, Superintendent of Cultivation, Citrus Experiment Station, informed the game farm..... that quail A 9299 was found dead on the grounds of the station.... He presumes that the quail broke its neck, in flight, against a small mesh wire fence at the foot of which the body was discovered in an advanced condition of decay." Dec 20, 1933 Trapped for a couple of hours this P.M.; see next page.

1944

# Lophantyx c. californica 630

no.	Color	Sex	Age	WT gm.	Time	Trap
A438065	r+y	♂	ad	208.8	9:45 pm	3
A438138	—	♂	im	207.3	"	"
A438129	b+y	♂	im	196.8	"	"
A438119	—	♀	im	185.6	"	"
A438041	r+y	♀	ad	188.0	"	"
A438102	—	♀	im	178.8	"	"
A438110	—	♂	im	182.7	"	"
A438219	—	♂	im	190.6	"	"
A438141	b	♂	"	177.4	9:45 pm	I
A438154	—	♀	im	193.3	"	"

Dec 21, 1933 Trapped

A438105	r+y	♀	im	194.0	4:45 pm	3
A438147	—	♀	im	193.5	"	"
A438249	—	♀	im	190.7	"	"
A438250	—	♂	im	188.0	"	"
A438157	r+y	♂	im	199.4	"	"
52944	—	♂	ad	215.8	5 pm	5
A438143	—	♀	im	196.4	"	"
A438138	—	♂	im	202.4	"	"
A438174	b+y	♀	im	173.4	9 P.M.	B
A438061	r+y	♂	ad	207.1	"	"
A438247	b+w	♂	im	197.1	"	"
A438054	r+y	♂	ad	223.4	last wk at 2!	
A438146	—	♂	im	195.9 (188.8)	9:15 P.M.	5 +
A438102	—	♀	im	171.2 (164.9)	9:30 P.M.	3 +
A438110	—	♂	im	176.1 (167.6)	"	" +

judging from the banding records,





there seems to have been a certain amount of wandering on the part of the birds:

1. Bird originally banded at Q taken at B
2. Lack of birds at 4; probably some birds seen at chicken houses and also by boat-house
3. Lack of birds at 1<sup>st</sup>; large flock (unusually large) at 3
4. Two new, unbanded birds perhaps new-comers from Q or beyond.

I find that the southernmost boundary of the Q covey communicates directly through an upper pasture, with the O'Neal orchard. Carl Balanger said that about two weeks ago a hunter shot quail in O'Neal's orchard, also some in the above-mentioned pasture, on Ralph's land.



Trapped Dec, 22, '33

Number	color	Sex	Age	Weight	Time	Trap
A438150	b, l	♀	im	176.7	4:10 pm	2
A438185	r, l	♀	im	177.6	"	"
A438243	b+w, l	♀	im	186.5	"	"
A438176	b+y, l	♂	im	192.2	"	"
A438102	—	♀	im	174.3	"	"
A438083	r+r, l; r, r	♂	ad	207.0	4:25 pm	III
A438144	—	♀	im	186.2	"	III
A438068	w, l	♂	ad	203.8	4:30 pm	I
A438219	—	♂	im	—	5 pm	I

1 1/2 hr. later  
etc to weigh

Dec 28, 1933. Went on a tour of So. Calif.

quail refuges, vicinity of Perris, Mockingbird Canyon, Julian Hills (Riverside Co.), with Gordon Dyer. He made the following statements:

In this brushy foothill back-country of Riverside Co., where roosting trees are at best very infrequent, and sometimes absent, on thousands of acres of quail territory, the birds roost by the hundreds, indeed habitually, in low dense shrubs and weed clumps which are only 2-3 feet in height, and usually less than 7 ft. in diameter.

[Such roosting places, observed were <sup>mostly</sup> inferior to Alp. C. Ranch type

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*Lophortyx c. californicus* 633

of roosting cover, from point of view of seclusion and protection; indeed the problem of roosting sites in this Riverside back-country is evidently a major one, and undoubtedly the birds are much more exposed to the attacks of horned owls, and even ground prowlers such as bobcats and coyotes, than the quail are in the Alp. Cr. Ranch type of country.

Chas. G. Hayes (old time market hunter, at present field asst. and trapper for Gordon True, says that whereas quail were abundant in So. Calif. in the old days, they are not so now, and have no chance to become so chiefly because the <sup>best</sup> water holes which used to provide them with essential moisture are nearly all now in the center of small ranches with the owners' house a few feet away and all the water diverted for household and farm use - or when water is still present in limited amount the birds are afraid (cats, dogs, man himself) to come to get it.



*Lophortyx c. californica* <sup>634</sup>

At the Smith Refuge, in the Gaviola Hills (Riverside Co.) there appeared about 50 Banded quail from a newly liberated covey of about 200 which had been released on the Mockingbird Canyon Refuge, 2 mi. away. The remainder of the Mockingbird Canyon Covey stayed where they had been released, and since this is a very large refuge, and offers favorable conditions, the migration of the fifty birds seems to have been due to change and to the existence of another covey of wild birds, in the Gaviola Hills, rather than to environmental pressure. However, on the other hand, the migration took place after the cessation of artificial feeding of grain.

Other instances of the migration of grain-fed planted coveys have been observed by True, although the majority of the birds tend to stay where released. One of these migrations was 7 mi. (from Mockingbird Canyon(?) to Perris), the other five miles. In each case (see, Bar. ex. no A 5734

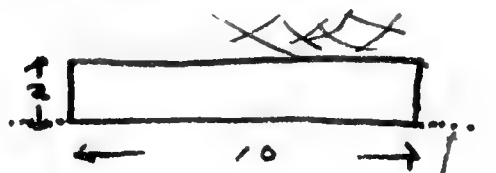




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the banded birds were discovered around the gardens and lawns of dwellings. Hayes & True say that these <sup>game-farm</sup> ~~game-farm~~ raised birds have a strong tendency to <sup>gravi-</sup> ~~gravi-~~ <sup>sed.</sup> ~~sed.~~ gravitate to dwellings.

To prevent these migrations as much as possible True has set <sup>brush</sup> up small holding pens:



These have board sides, an open, 1" mesh poultry wire top. The birds (up to about 200) are held in them about a week, then some, <sup>(225)</sup> but not all released, then, a few days later, a few more are released. The released birds tend to stay in the vicinity of their caged fellows, and learn the country. By the time all are released (about a month or two) they have become pretty well established on the grounds.

<sup>wire</sup> flat on ground to prevent burrowing of predators

Charles J. Hayes says that once he saw a roadrunner <sup>boldly</sup> killing a quail. The roadrunner simply made a grab and a swallow, almost in one motion, and with each of



*Lophortyx c. californica* 636

<sup>his</sup> grubs a quail disappeared. It happened so quickly that Hayes could hardly see it. While he looked the roadrunner got 2 or three young. The old birds were standing about, scolding at Hayes, not protecting their young (but if Hayes had not been there??).

At the Smith Refuge (p 34), Mr. Smith said that the Barnswallows which lived in the phloxes around his house had twice got quail from the large flock that lives on the adjacent hillside. At least one of these times, he said the owl dropped the headless body of the quail from the tree and it was banded (see letter from Tuck to me regarding certain banded quail returns, two of which had been killed by owls).

Dec. 29, 1933. Palmdale, Calif. Edmondson, trapper under Gordon Tuck, told me that he shot a red tail that was carrying a banded quail. The red tail got away but dropped the quail; this was months ago [Presumably this was not a prairie falcon].

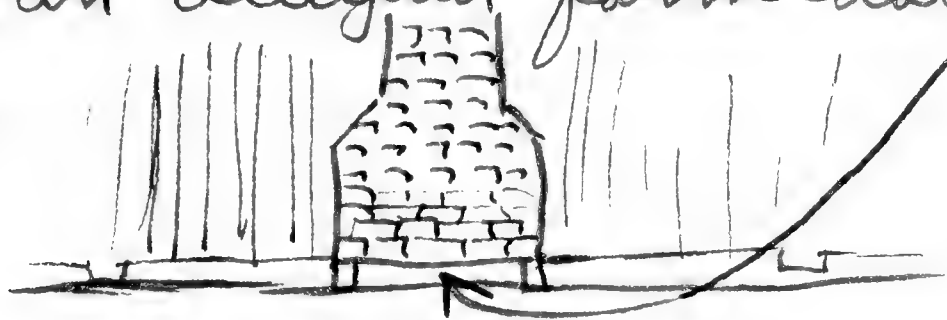
Edmondson said that he has



*Lophortyx c. californica* 637

found quail roosting on the ground. He remembers one occasion when at 11 P.M. he flushed 4 or 5 quail <sup>via scattered</sup> <sup>by</sup> means of his dog, from the ground. By means of his flash light he could see from where they arose — from a fence corner, beneath a low weed, etc.

Another time, he said, about 8 quail roosted many times on the ground beneath the chimney hearth of an occupied farm house! Such a



retreat was of course exposed to

danger of attack by cats and shunks, but there was, he said, space for them to dodge around, somewhat inside. ~~He~~ Mr. Smith of the Smith Refuge (see above) brought us a band (A 6238) of a quail killed on his ranch by a wild house cat (which he shot in the act), ab. Dec 15.

Note <sup>(above)</sup> — ! True says Edmondson's accounts of what he has seen are not always reliable.





# Lophortyx c. californica 638

Trooped Jan. <sup>5</sup> 4, 1934

Number	Color	Age	Sex	Weight	Time	Troop
A438161	r, l	im	♀	✓ 182.3	again 1/6/34, 3	5 p.m. 2
A438103	w, l	im	♀	✓ 188.9	again 1/6/34, 3	"
A438120	—	im	♂	✓ 181.5	again 1/6/34, 3	"
A438095	b, l	im.	♀	✓ 176.1	again 1/6/34, 1	"
A438109	—	im	♂	✓ 176.9	again 1/6/34, 3	"
A438111	b, l	im	♂	✓ 181.5	again 1/6/34, 3	"
A438182	—	im	♀	✓ 156.3	again 1/6/34, 3	"
A438150	b, l	im	♀	✓ 167.4	again 1/6/34, 3	"
A438251	—	im	♂	✓ 180.8	again 1/6/34, 1	"
A438252	w, l	ad	♂	✓ 192.9	again 1/6/34, 3	"
A438110	—	im	♂	✓ 171.0	again 1/6/34, 3	"
A438253	—	im	♀	✓ 174.2	again 1/6/34, 1	"
A438 154	—	"	♀	✓ 175.7	"	"
A438 126	—	"	♀	✓ 177.9	again 1/6/34, 3	"
A438 094	—	"	♀	✓ 179.2	again 1/6/34, 1	"
A438 121	b	"	♀	✓ 183.2	again 1/6/34, 1	"
A438254	—	"	♂	✓ 200.8	again 1/6/34, 3	"
A438237	—	"	♀	✓ 161.3	again 1/6/34, 3	"
A438115	b	"	♀	✓ 172.3	again 1/6/34, 3	"

The below liberated next A.M. 8:45 B

+	A438144	—	im	♀	✓ 191.7	"	"
+	A438 223	b+y	"	♂	✓ 195.3 (178.2)	"	"
+	A438 048	y	ad	♀	✓ 190.5	"	"
+	A438 043	y	"	♀	✓ 178.7 (159.9)	"	"
+	A438 170	b+y	im	♂	✓ 207.9 (187.2)	"	"



# Lophortyx c. californica 639

+ A438 201	h+y	imm ♂	✓ 216.9 <sup>(198.4)</sup>	8:45 B	+
A438 202	y	" ♂	✓ 187.9	" "	
+ A438 047	y	ad ♂	✓ 205.1 <sup>(184.8)</sup>	" "	+
A438 198	h+y	imm ♀	✓ 181.9	" "	
+ A438 083	3n	ad ♂	✓ 206.2 <sup>(187.3)</sup>	" "	+
+ A438 196	h+y	imm ♀	✓ 177.8 <sup>(161.7)</sup>	" "	+
+ A438 227	h+y	ad ♀	✓ 196.1 <sup>(178.9)</sup>	" "	+
+ A438 172	h+y	imm ♀	✓ 188.6 <sup>(175.6)</sup>	" "	+
A438 162	h+y	imm ♀	✓ 193.7	9:10 pm 5	
A438 189	h	" ♀	✓ 201.3	" "	
A438 255	—	" ♀	✓ 193.0	" "	
A438 256	—	" ♀	✓ 204.5	9:20 pm 2	
A438 136	h	" ♀	✓ 189.5	" 3	
A438 139	h	" ♂	✓ 181.0	" "	
A438 057	n	ad ♀	✓ 183.4	" "	
A438 061	n	" ♂	✓ 180.2	" "	
A438 041	n+y	" ♀	✓ 169.4	" "	
an old timer; possibly light for this reason.					
529 441	—	ad ♂	✓ 205.6	" "	
A438 064	n+y	" ♀	✓ 175.5	" "	
A438 054	n+y	" ♂	✓ 212.2	" "	
A438 247	h+w	imm ♂	✓ 185.3	" "	
A438 249	—	" ♀	✓ 174.7	" "	
529 448	w	ad ♀	✓ 199.4	" "	
A438 210	—	imm ♀	✓ 150.1 (!)	" "	
A438 176	h+y	" ♂	✓ 175.6	" "	
A438 147	—	" ♀	✓ 197.1	" "	



# Lophortyx c. californica 648

Jan 6 - Trapped again today:

A438063	—	ad ♂	207.2	4:15 P.M. <sup>3</sup>
A438245	—	im ♂	191.3	" "
A438062	rt4	ad ♀	190.9	" "

also yesterday; see #638

A438105	rt4	im ♀	208.9	4:30 P.M. 5
A438250	—	im ♂	194.1	8:45 P.M. 5
A438163	7	" ♀	185.2	" "
A438154	—	" ♀	187.4	" 2
A438257	—	" ♂	189.8	" "

The number of new birds taken indicates that there has been an influx from outside regions, since I am quite sure that I had banded all the resident birds previously. This influx may be due to two causes:

1. Uniting of small, scattered coveys to form large coveys in the central parts of the range — a characteristic movement of this time of the year.

2. Emigration of persecuted coveys in habiting regions adjacent to the Ralph refuge but unprotected from shooting. This has almost certainly taken place from O'Neil's



land above the quarry (mentioned earlier), and is doubtless the more potent of the two factors.

Viewing each year the loss of grain around the margins of newly planted fields, I have reached the conclusion that were it not for the predators which lie in wait for the rodents, passerines, and quail, ~~which~~ that are responsible for this marginal toll, the loss <sup>to the farmers</sup> would be much greater. Quail, rabbits, sparrows, <sup>and</sup> mice do not dare venture much beyond 30 ft into the fields, and even then, they are subject to capture, as indicated by the location of predatory bird outlook posts on fence posts (horned owls that I have seen) <sup>and</sup> tops of tall trees growing in such fields (horned owls red tails). // Were it not for the presence of such predators, the marginal loss to the farmer would be much greater.

See p. 9, Notes on Presence of Quail Foods for note on unusual abundance of food this year.

Jan. 15, 1934. Prayed today:





# Lophortyx c. californicus 642

No	Color	wt	Species	Age	Sex	Time	Trap	Remarks
A438247	w + r	205.9	min	♂		9 P.M.	4	
A438063	—	224.6	ad	♂		"	4	
A438143	—	201.3	min	♀		"	"	
A438139	h	192.2	min	♂		"	"	
A438151	h	210.8	min	♂		"	"	
A438189	h	202.3	min	♀		"	"	
A438064	w + y	186.6	min	♀		"	"	
A438249	+	192.3	min	♀		"	"	
A438176		188.0	min	♂		"	"	
A438219		193.3	min	♂		"	"	
A438258		208.9	ad	♂		"	"	
A438245		186.5	min	♂		"	"	
A438162		197.5	min	♀		"	"	
A438243		186.0	min	♀		"	"	
A438105		196.4	min	♀		"	"	
A438041		180.8	ad	♀		"	"	
A409363		216.6	ad	♂		"	"	

Jan 16, 1933 Trapped

broken leg

A438121	181.6	min	♀		5 P.M.	3	
A438125	174.8	"	♂		"	"	
A438111	187.9	"	♂		"	"	
A438164	175.7	"	♀		"	"	
A438126	184.5	"	♀		"	"	
A438109	179.6	"	♂		"	"	
A438119	184.8	"	♀		"	"	
529449	222.6	ad	♂		"	"	
A438094	—	min	♀		"	"	



# Lophortyx c. californica 643

N

A438145	—	imm ♂	5P.m.	3
A438140	—	imm ♀	5P.m.	3
A438103	—	" ♀	"	"
A438136	—	" ♀	"	"
529445	—	ad ♀	"	"
529446	—	" ♂	"	"
A438248	—	imm ♀	"	"
A438161	—	imm ♀	"	"
A438120	—	" ♂	"	"
A438095	—	" ♀	"	"
A438117	—	" ♀	"	"
A438259	—	" ♀	"	"
A438251	—	" ♂	"	"
A438046	—	ad ♂	"	"
A438127	—	imm ♀	"	"
A438221	—	" ♂	"	"
529450	195.0	ad ♂	"	"
A438256	—	imm ♀	"	"
A438247	—	imm ♂	"	4
A438057	191.0	ad ♀	9P.m.	"
A438054	214.6	" ♂	"	"
A438044	169.2	ad ♀	"	"
529441	222.2	ad ♂	"	"
A438061	198.3	" ♂	"	"
A438062	192.6	" ♀	"	"
A438146	210.3	imm ♀	"	3
A438110	175.9	" ♂	"	"
A438253	190.9	" ♀	"	"
A438254	215.2	" ♂	"	"

#

6T!



# *Lophortyx c. californica* 644

(Norman)	numbered			
	Band lost! h+y	imm ♂	190.8	9:15 P.M. 5
N	new band: A438260			
	A438144	" ♀	192.0	" "
N	A438261	" ♀	196.6	" "
	A438048	ad. ♀	188.2	" "
	A438262	imm ♂	186.2	" "
	A438198	" ♀	179.8	" "
	A438172	" ♀	192.4	" "
	A438170	" ♂	187.6	" "
	A438223	" ♂	—	" "
	A438196	" ♀	—	" "
N	A438047	ad ♂	192.0	" "
	A438255	imm ♀	—	" "
	A438263	" ♂	195.4	" "

For further records of *Accipiter velox* and *cooperii* Latham's quail see *A. cooperii*, pp. 28-29. For record of *Buteo l. calurus* killing quail see this species, p. 144.

Jan. 20, 1934. Trapped again.

A438196	imm ♀	180.8	4:45 A
A438201	" ♂	216.2	" "
A438047	ad ♂	196.6	" "
A438223	imm ♂	195.2	" "
A438172	" ♀	196.5	" "
A438202	" ♂	187.0	" "
529448	ad ♀	198.8	" 2
A438146	imm ♂	199.8	" 2





# *Lophortyx c. californica* 645

A438252	ad ♂	205.2✓	4:45 P.M. 2
A438125	imm ♂	179.5	" "
A438254	imm ♂	204.8	" "
A438061	ad ♂	197.0	5 P.M. 4
A438243	imm ♀	185.0	" "
A438151	imm ♂	205.6	" "
A438064	ad ♀	187.8	" "
A438247	imm ♂	193.5	" "
A438041	ad ♀	177.9	" "
A438143	imm ♀	187.8	" "
A438258	ad ♂	205.2✓	" "
A438162	imm ♀	193.6	" "
A438105	imm ♀	193.4✓	" "
A409363	ad ♂	204.5	" "
A438189	imm ♀	202.2	" "
A438121	" ♀	—	5:15 3
A438147	imm ♀	—	5:15 I
A438115	imm ♀	—	" "
A438136	imm ♀	—	" "
529446	ad ♂	—	" "
A438103	imm ♀	—	" "
A438094	imm ♀	—	" "
A438185	imm ♀	—	" "
A438120	imm ♂	—	" "
A438259	imm ♀	—	" "
A438161	imm ♀	—	" "
A438203	imm ♂	—	" "
✓ 529449	ad ♂	—	" "



# Lophortyx c. californica 46

529449	ad ♀	—	5:15 pm	I
A438148	im ♀	—	"	"
A438170	im ♂	—	5:30 pm	B
A438221	im ♂	—	5:40 pm	III
A438087	ad ♂	—	5:45 pm	II
529437	ad ♀	—	5:55 pm	I
529441	♂	—	6:05 p.m.	4

Jan 21, 1934. accidentally caught:

439329	ad ♂	—	6 P.m.	3
A438109	im ♂	—	"	"
A438150	" ♀	—	"	"
A438126	" ♀	—	"	"

Jan 24, 1934.

Trapped; all these birds released at Crocker 160 acres, 3 mi. W. of this side of ridge by P.M. near middle of area.

A438094	im ♀	—	3
A439329	ad ♂	—	" "
529449	" ♂	—	" "
A438182	im ♀	—	" "
A438185	" ♀	—	" "
A438193	♀	—	" "
A438044	ad ♀	—	4:15 p.m. 4
A438105	im ♀	—	" "
A438139	" ♂	—	" "
A438151	" ♂	—	" "
A438189	" ♀	—	" "
A438176	" ♂	—	" "
A438249	" ♀	—	" "
A438061	ad ♂	—	" "
✓ A438245	im ♂	—	" "



# *Lophortyx c. californica*.647

A438247	♂ imm	4:15 P.M. 4
A409363	♂ ad	" "
A438062	♀ imm	" "
A438064	♀ ad	" "
A438229	♀ imm	" "
A438264	♂ imm	8:30 P.M. 5
A438048 188.3	♂ ad	" "
A438043	♂ ad	" "
A438255	♂ imm	" "
A438144	♂ "	" "
A438047	♂ ad	" "
A438078 211.0	♂ ad	" "
A438086 178.7	♀ "	" "
A438201	♂ imm	" "
A438083	♂ ad	" "
A438058 213.2	♂ ad.	" "
A438170	♂ imm	" "
A438223	♂ "	" "
A438198	♀ imm	" "
A438261	♂ "	" "
A438114 204.1	♂ "	" "
A438227	♂ ad	" "
A438260	♂ imm	" "
A438262	♂ "	" "
A438136	♀ "	9 P.M. 3
A438121	♀ "	" "
A438154	♀ "	" "
529437	♀ ad	" "



# *Lophortyx c. californica* 648

	A438125	185.9	♂	imm	9 p.m. 3
	A438196		♀	"	" "
	A438127		♀	"	" "
	A438109		♂	"	" "
	A438259		♀	"	" "
	A438254		♂	"	" "
	<del>5</del> 529450		♂	ad	" "
	A438119		♀	imm	" "
	A438095		♀	"	" "
	529448		♀	ad	" "
	A438110		♂	imm	" "
	A438103		♀	"	" "
	A438221		♂	"	" "
	A438248		♀	"	" "
	A438237		♀	"	" "
	A438263		♀	"	" "
	A438120		♂	"	" "
N	A438265		♂	"	" "
	A438224		♀	"	" 4
	A438158		♀	"	" "
	A438067	158.6	♂	ad	" "
	A438173	209.8	♂	imm	" "

Jan. 25, 1933. Buried again. all released at  
Coachman, as yesterday.

	A438183		♀	imm	4 p.m. 3
	A438117		♀	"	" "
	A438161		♀	"	" "
	A438148		♀	"	" "
	A438126		♀	"	" "





# Lophortyx c. californica

649

only series  
A438257  
A438150  
A438211  
A438069  
A438041  
A438143  
529441  
A438243  
439326  
A438065  
A438258  
A438163  
A438162  
A438231  
A438210

54521  
A438257  
A438150  
A438211  
A438069  
A438041  
A438143  
529441  
A438243  
439326  
A438065  
A438258  
A438163  
A438162  
A438231  
A438210

A438257	♂	imm	4:30 P.M. 3
A438150	♀	imm	" "
A438211	♂	imm	" "
A438069	♀	ad	" 4
A438041	♀	ad	" "
A438143	♀	imm	" "
529441	♂	ad	" "
A438243	♀	imm	" "
439326 200.3	♂	ad	" "
A438065 200.3	♂	ad	" "
A438258	♂	ad	" "
A438163	♀	imm	" "
A438162	♀	"	" "
A438231	♂	"	" "
A438210	♀	"	" "

The marginal figures above show in B the normal condition of the imm. primary coverts, with the two dark coverts 7 and 8, respectively. There may be a buff tip, very faint, on each of these, or there may be none at all. The primary coverts 1-6 (incl) are conspicuously buff barred.

In A we see an abnormal case, displayed by both wings, in which 5 and 6 are like normal 7 and 8, 7 and 8



*Lophortyx c. californica*. 650

are like normal 5 and 6.

Jan. 28, 1934. Alp. Creek Ranch. Trapped during afternoon.

N	A438164	imm	♀	78 m. Q
	A438266	ad	♂ ✓	227.0 " "
	A438267	"	♂	" "
	A438268	imm	♀	✓ 197.1 " "
	A438269	"	♂	" "
	A438270	"	♀	" "
	A438166	"	♂	✓ 201.2 " "
	A438271	"	♂	" "

prim. cov. no 7 spotted - lightly -  
in some manner as 1-6 incl.; no 8  
as usual. both wings

A438168	imm	♂	78 m. Q
A438272	"	♀	" "

no. 7 somewhat as in A438271,  
not quite so much spotting; both wings.

A438273	imm	♀	78 m. Q
A438274	ad	♂	" "
A438275	imm	♂	" "
A438276	"	♀	" "
A438165	"	♂	✓ 188.7 " "
A438055	ad	♀	✓ 194.3 " "
A438054	"	♂	✓ 210.1 7:30 4
A438277	imm	♀	" 3
A438129	"	♂	" "
A438263	"	♂	" "



*Lophortyx c. californicus* 651

A438115	min. ♀	7:30 <sup>p.m.</sup> 3
A438256	" ♀	" "
A438202	" ♂	" "

Jan 29, 1933 Trapped:

A438251	min ♂	8:45 <sup>p.m.</sup> 3
A438146	" ♂	" "
A438097	" ♂	" "
529446	ad ♂ - 209.1	" "
<del>A438278</del>	min ♂	" "
A438172	" ♀	" "
A438155	" ♀	" "
A438068	ad ♂ - 206.0	" "
A438225	" ♀	" "
A438207	min ♀	" "
A438252	ad ♂	" "
A438104	min ♂	" "
A438087	ad ♂ - 190.9	" "
A438141	min ♂	" "
A438279	min? ♂	9 <sup>p.m.</sup> 3
A438263	min ♂	" "

Jan 30, 1933. Trapped for the last time, thus completing the 1 yr. program. All birds caught yesterday and today released at Q.S.

A438250	min ♂	12 <sup>m.</sup> 5
A438063	ad ♂	" "
A438057	" ♀	" "
A438027	♂	p.m. 3





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It has occurred to me that the reason for the unexpected migration this year of quail from 4, B, and the traps up to Q is due to the fact that all the underbrush around the Posthouse Lake (w-side), swimming pool, etc. has been cleared away by Ralph. This has markedly reduced quail range at 4, has completely annihilated range at A (which was remained last summer, for that reason) has forced the moving of 3, reduced the range considerably at '2. Photos of the bare waste ground after obliteration of the Spanish broom forest at A, taken.

Photos.

Feb. 6, 1934. Someone found a dead quail on the Mills College (Oakland) campus; imm. ♀, 180.9, in good condition with full crop and gizzard. Probably it died the night before. Examination showed no displaced feathers or torn skin, but beneath the skin were many extensive contused areas. Chief of these was at the base of the skull, ventral side, and on the breast at region of the furcula, one side of which was broken. It is



*Lophortyx c. californicus* 653

addition there were many contused areas along one side, more or less in dorsal ventral streaks, as though made by a fence wire. On the other side were a few also. No teeth marks or other indications of predatory animal work. Evidently the bird had crashed into some object, either a fence (as 2" poultry mesh), or perhaps an automobile. Crop & gizzard saved.

Examination of stomach and crop contents of Alf. C. Ranch quail (which I am now doing) has shown so far that:

Seeds are often eroded, evidently by digestive juices, even when in the crop.

Most seeds etc. are in fresh condition, however, because the majority of the birds were killed in the late afternoon or early evening, after the heavy evening meal.

*Baccharis pilularis*, *Anthemis cotula* and such minute seeds are probably not picked up one by one but are taken wholesale from the plant. This is



indicated by the gobs of *Baccharis* papers, all in one place, and with the seeds still adherent in many cases.

There is not much gravel in the crop, often none, indicating that it is picked up (consequently lost) only gradually.

Feb. 14, 1934. The dead bird autopsied above (p. 655) actually did hit <sup>up</sup> a fence, it turns out. The man who left it came around; and he saw it fly into ~~the~~ <sup>some ~~thin~~ ~~wire~~ ~~enclosed~~ ~~area~~</sup> <sup>electric</sup> <sup>light</sup>, <sup>for</sup> picked it up.

Another one was found on the Mills Campus yesterday — at 5<sup>th</sup> at 187.1, crop empty. It had evidently struck something too, although there was no fence, and no road where cars would be traveling fast, within 150 ft.

1. slight contusions on front of each shoulder, one on int. side of lower breast.

2. extensive bloody contusions on base of head (L. side), and from that point along the vertebrae (lower surface) to shoulders.

Bird was plump and healthy





*Lophortyx c. californicus* 655

otherwise

Feb. 19, 1934. Donald D. McLean tells me that someone has reported (published record) that young quail have been killed from the beaks of bur-chowen becoming lodged in their throats. Bur-chowen is an important food article of quail (see *unpublished manuscript*). The beaks are swallowed whole in the early fall months, before the seeds have escaped (as in *Amagallia americana* and others), but later, when the seeds have escaped from the pods during the winter months, some quail eat only seeds, no pods, in a stomach!

Many of the very small and minute particles found in quail gizzards are swallowed accidentally as a result of filtering for seeds, I believe, since they are sometimes microscopic in size and could hardly be seized individually by a quail's bill. Examples of such microscopic grains saved from stomach no 40.

Feb. 22, 1934 - Received letter from





one June Howell reporting that ♂ quail A/1694 (State game farm banded) had been found drowned in the ranch water tank.

Donald D. McLean says that the region of greatest abundance of quail in the entire state is in N.E. San Diego County, in the Warner Springs country. This semi desert area is characterized by giant boulders (and also smaller ones) which cover the hills, or comprise them, rather, with various species of *Rhus*, and other chaparral growths growing between. The crevices among the boulders make up for the comparative scarcity of cover, McLean says, so much so that whereas he as often seen hawks try to get quail in that country, he has as far not seen one successful attempt.

The quail roost in the "Sumac" (*Rhus trilobata*?) bushes.

In the more open country around Perris, such as Mockingbird



Canyon, he says the quail are preyed on even by Horned Owls, and by the falcons with ease - which is what I had surmised (see ante. p. 1, about).

The Warner area is far enough from the main line of travel so that it is not much hunted over. McLean says one may still see flocks of 1000 birds there. *Quortyx*, and *Lophortyx californicus* and *gambeli* all over, to a limited extent, in that region, he says.

McLean agrees with me that whereas predatory mammals do not affect quail populations to any serious extent, that it is otherwise with predatory birds, especially *A. cooperi*. As he says, one nearly always finds a cooper hawk in residence whenever a quail covey may be living, and day after day, in fact several times each day, the hawk will make a try at the quail. The young hawks are the ones which are observed



*Lophortyx c. californica* 658

to miss the quail; McLean says the ad. birds seldom miss, however. The ads. sneak quietly into a tree adjacent to a covey and then wait there - one hand spread - until the quail come out into the open to feed.

On the Spring Valley Water Co. land McLean watched a cooper hawk take toll of a flock of ab. 30 quail on the average of one every other day until the flock disappeared.

Goatsuckers illustrate this suspicious tendency to stick with a covey of game birds until they have all been caught.

In Grinnets McLean watched a Goatsuck clean up a flock of 20 mt. quail during the course of a month.

In another area he watched a Goatsuck clean up a family of 7 young and one old bird in the course of three weeks. He found the progressive piles of feathers which indicated the fate of the birds, as well as seeing the hawk actually





at its work.

Another conclusion drawn from the current stomach examinations.

Even though the crop may be only  $\frac{1}{2}$  full the stomach is nearly always full, as of course it is whenever the crop is more than  $\frac{1}{2}$  full. This fullness of the stomach is probably due to:

1. presence, usually, of a considerable number of gravels.
2. probable extended time that food substances from earlier meals remain in stomach if they are of the type which digest slowly.
3. the probable fact that if there is any food in the crop at all it is passed down into the stomach as fast as the latter can take it.

This last (no. 3) item is probably the most important. Frequently one finds a fresh grain or two of crop but already in the stomach.



even when the quail has only been in the trap a short time. Such grains are passed from the (usually well-filled) crop into the stomach before any digestive juices of the crop have had a chance to work on them.

April 1, 1934. Heard the jaw ("juar") call of a ♂, several times repeated, from the Ralph Anderson line (north) of Ralph Ranch by Shyline Blvd. March 25, when April 8 I was last down here, quail were in flocks, with no sign of pairing.

April 8, 1934 Birds heard quavering in vicinity of Mc Lellans, many pairs seen scattered out in pastures and along roads. Moffitt tells me that the birds are in full nesting activity in San Diego Co., and adjacent counties.

From Alan Mc Kean I learned the following concerning his work under Rader some time ago (mentioned by me about summer before last):

1. Mc Kean examined about



50 quail stomachs from the Bonita Ranch where cattle were causing an overgrazed condition of the land. The stomachs averaged only about 6-7 species of plants in each, and only about 3 important ones, these three being, in order of decreasing importance (percent), *Erodium*, *Bromus*, *Medicago lupulina*. This is just what I found at Ocell Ranch, where overgrazing likewise occurs, but not at Ralphs, where there is no overgrazing.

2. There was enough cover for roosting and protection on the Bonita place, unlike many of the refuges where there was none. The various species of *Rhus* (*integrifolia*, *ovata*, *laurina*) furnished this cover.
3. This ranch, in spite of overgrazing and presence of many hawks (*Circus*, *sharpshin*) was, along the washes and other uncultivated areas, very favorable for quail. In the area close to McLean's observation shack (chiefly



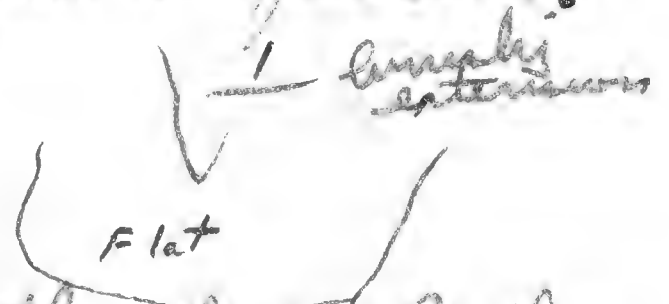


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along the wash there, he counted 200 pairs of quail in January.

4. The quail did not venture out into the flat, open cultivated regions, or even into the dense mustard stands which occupied many acres (see my earlier notes). Remedy for this would be

(a) fence off any firmly extensions which project out into the flat cultivated areas as pastures:



(b) cut swaths through the mustard fields, making them available for quail.



5. Quail nested at the edges of little isolated grass tufts and clumps of brush, where they could get a good view, rather than in the thick brush.
6. Recommendations which McKean would make in order to increase quail in the region,





in order of decreasing importance, are as follows:

1. prevent shooting (hunter-trap & heavy toll)
  2. reduction of hawks (coopers and sharpshooters). Owls are not common enough, there - even barn owls - to be a menace. Barn owls are the only common ones.
  3. Prevent over grazing.
7. Among other dangers to young quail the following may be mentioned - Mr. Zean found a baby quail (a week or less old) lagging behind the rest and evidently doomed to desertion. Catching it he discovered a cactus thorn imbedded in its leg. He removed it and the baby ran off with nicely more strength.
8. Just as in my birds, certain areas apparently just as suitable for quail as other adjacent areas were never frequented. Possibly this is due to habit or to lack of any need on the part of the coveys, at its present size, to wander so far from headquarters.



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Possibly it is the availability of nesting grounds (more extended than covey range) which determines quail distribution.

See under Weather Conditions, p. 45, for account of record-breaking dry, warm winter this year. It may, through the drying up of springs, and of green vegetation, affect quail unfavorably. Yes! (later).

April 24 - Another reason for the increase of brushy areas, unsuitable for quail, in these hills (subject discussed by me in Trans. 19th Am. Game Conf.) is that in recent years fires have been prevented by the Government. Buster Mc. Lellan tells me that in the time of his father the cattle men regularly set fire to the hills each year. The Indians used to do this, too.

The most difficult season of the year, as far as environment goes, for quail, is in midwinter or late winter, when the seeds are nearly gone and green vegetation is not very luxuriant, and when predators are raising young and so must have an extra food



supply.

April 29, 1934. Alf. A. Ranch. Quail  
are now scattered through the woods,  
in pairs. Many are heard calling  
"quas".

May 10, 1934 Donald D. McLean, just back  
from a month in Southern California  
taking care of refugees with Gordon Luce,  
told me the following:

1. Food, though, scanty due to the  
dry winter (see weather note) p. 45  
is fair in San Diego Co.,  
consequently the quail there are  
paired; some with young.
2. Some of the Maricopa quail  
recently liberated there  
(L.C. plumbeus) have already  
paired with the local S.D.  
Co. quail. Don saw one  
family of one Mexican <sup>ad.</sup> and  
one valley quail <sup>ad.</sup> with about  
13 young!
3. In Riverside County, where  
the feed is very short,  
much more so than in  
San Diego Co., the quail





~~be~~ are still in flocks, and probably will not breed this year.

4. In lower California, vicinity of Ensenada and south, Pomeroy reported feed conditions even poorer than in Southern California.

5. In the Inyo Valley, which has been made a semi-desert as a result of diverting its water to supply Los Angeles, the valley quail, faced with the choice of extirpation or moving, have done the latter and occur on Warner Mt up to 11,000 feet, where in the old days <sup>valley</sup> quail were never seen, according to residents.

6. Inductive adaptive modification, according to McLean the body feathers of *L. c. californicus* are more numerous, and also individually longer than in *L. c. pallioides*, which in turn has more abundant



and longer feathers than *L. gambeli*.  
(This should be tested as to its validity)

May 21, 1934. Someone brought Ethel a dead baby quail yesterday; it must have died at least a day earlier, that is, May 20, judging from the stretch. It appeared to be only a day or two old. This is the first record I have for this district (Mills College, Oakland) this year.

Yesterday I struck a ♀ quail with my car as it rose with its mate from the roadside where they had been feeding (about 7:30 A.M.). This was on the Portola Road near the Ormandale Ranch. The bird had an egg (with shell) in the oviduct; others in the body cavity were small, the largest about this size : 0.

May 27 - E. saw a covey of young which were big enough to jump up over curbs with ease while following their parents. This was at Mills College.

June 4, 1934. Portola Road, near Ormandale Ranch. E. saw several well grown young <sup>in a covey</sup> with their parents. They appeared to be completely feathered.

June 16, 1934. Gordon True tells me that even in ~~San~~ San Diego County (see



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remarks by Donald McLean about conditions, a few pages previous) only a part of the birds are nesting. The rest have, in some cases at least, paired up, but still keep in coveys, each pair a unit within the larger unit.

Succulent green stuff has been entirely gone for some weeks, having disappeared much earlier than usual.  
July 28, 1934 - Summer Ranch (N.W. 1/4 Sect. 17, Twp. 7S, R 3W), Santa Cruz Mts, San Mateo Co., Calif.

A covey of adults and practically full sized young is staying in the vicinity of our cabin during recent days. July 14, while leveling the garage site, we uncovered a nest with 9 eggs in a little grass line hollow beneath a ~~grass~~ patch of <sup>dead</sup> poison oak brush which I had cut several months earlier. It was at the edge of the patch.





















